HALF-YEARLY ABSTRACT

OF THE

MEDICAL SCIENCES.

JULY—DECEMBER.

1865.

THE

HALF-YEARLY ABSTRACT

OF THE

MEDICAL SCIENCES:

BEING

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AND CONTINENTAL MEDICAL WORKS PUBLISHED IN THE
PRECEDING SIX MONTHS.

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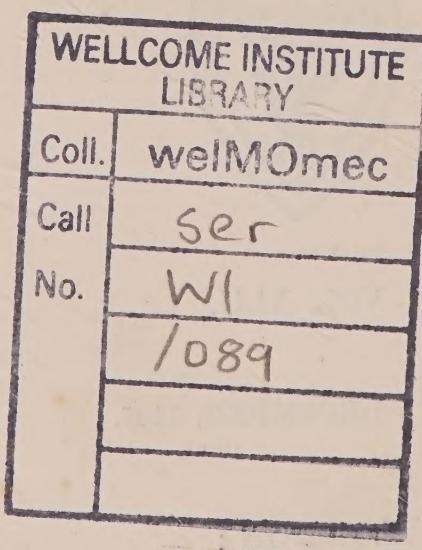CICERO,

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Archives of Medicine.
British Journal of Dental Science.
British Medical Journal.
British and Foreign Medico-Chirurgical Review.
Dublin Quarterly Journal of the Medical Sciences.
Dublin Medical Press.
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Wiener Medicinal Halle.
Wiener Medizinische Wochenschrift.
Wiener Medizinische Zeitung.
Würzburger Medizinische Zeitschrift.
Zeitschrift für Rationelle Medicin.
Zeitschrift d. k. k. Gesellschaft d. Arzte Wien.
Zeitschrift für Medizin (Küchenmeister).

ITALIAN.

Annali Universali di Medicina.

NOTICE TO CORRESPONDENTS.

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CONTENTS OF VOL. XLII.

PART I.

PRACTICAL MEDICINE, PATHOLOGY, & THERAPEUTICS.

SECT. I.—GENERAL QUESTIONS IN MEDICINE.

(a) *Concerning Hygiène.*

PART II.—SURGERY.

Sect. I.—General Questions in Surgery.

Sect. II.—Special Questions in Surgery.

(a) *Concerning the Head and Neck.*

(b) *Concerning the Trunk.*

PART III.—MIDWIFERY.

Midwifery and Diseases of Women and Children.

(a) *Concerning Pregnancy and Parturition.*

PART IV.—MATERIA MEDICA AND THERAPEUTICS.

REVIEWS, BIBLIOGRAPHICAL NOTICES, ETC.

HALF-YEARLY ABSTRACT

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ETC.

PART I.

PRACTICAL MEDICINE, PATHOLOGY, & THERAPEUTICS.

SECT. I.—GENERAL QUESTIONS IN MEDICINE.

(A) CONCERNING HYGIÈNE.

ART. 1.—*The Progress of Cholera.*

By Dr. B. W. RICHARDSON.

A PANDEMIC extension of this formidable pestilence again threatens. The history of the present outbreak, at its commencement and in its course to the shores of Eastern and Southern Europe, is thus told by Dr. Richardson :—

"The present epidemic, in respect to its origin, presents nothing new in the history of cholera. It connects itself, once again, or at least it seems to connect itself, with the aggregation under unfavour- able circumstances of immense multitudes of unclean men. A holy pilgrimage of the true Mahometan type on this occasion seems to have been the centre from which the disease has radiated. Some of our contemporaries have conceived that such origin is unique, and various hypotheses have been raised on this supposed new fact. For- tunately for labourers in science, they have no occasion to trouble themselves with speculations of a novel kind resting on the Mussul- man pilgrimage and its results. The fact has been observed before, perhaps in regard to Mussulman pilgrims, and certainly in respect to the worshippers of Juggernaut. In the year 1858, the native medical subordinate of the Madras medical establishment, Dr. W. Vencataswamy Naidoo, published a special letter bearing upon the causes which gave rise to cholera amongst the pilgrims of Jugger- naut. . . . .

"The earliest reliable description of the present epidemic of cholera came to us by one of Reuter's telegrams, copied from the *Triester Zeitung* of June 26 of the present year. Previously, that which had come to us was mere rumour; but here there was some-

thing definite.   Cholera was reported as prevailing at Alexandria to a considerable extent, the disease being fatal in the majority of cases.   We know now pretty surely that the telegraphic report was true, and that the first case of cholera in Alexandria appeared on May 11th, in the north-western suburb, near the railway-station. This suburb is one of the lowest in the place, and is inhabited by up-wards of 20,000 of the lowest class of Arabs, Greeks, and Maltese. It is worthy of remark, that the epidemic appeared to radiate from one provisional case.   In the first two or three days from 3 to 4 persons succumbed, then from 8 to 10 ; in the beginning of June 30 deaths were reported in one day ; on the 17th, 61 ; and on the 25th, 183. At this time the sanitary condition of the town was infamous ; and the water supply, derived from the Nile canal, was said to be charged in its course with decomposing matter derived from the carcases of 700 animals lying in the canal.

    " While all accounts appear to point out that the disease radiated in Alexandria from what we have called a provisional case, the evi-dence does not seem in favour of the view that the disorder had its origin spontaneously in the town.   On the contrary, the evidence since elicited shows that the disorder was imported from Mecca, and that it actually was developed at the festival of the *Kurban Bäiram*. This festival extends from the first to the twentieth day of May, and as many as 700,000 pilgrims gather together in Mecca and on the hill of Arafat hard by.   Arafat, to the eye of the Mussulman, is full of romance of the most tender kind, it being the spot where the first and most ancient of lovers—none other than the venerable Adam and Eve—met and, we suppose, embraced after they had been se-parated 200 years for their primæval sin.   The Mahometan pilgrim considers all his previous labours incomplete, whatever he may have done, until he has ascended the hill and celebrated his pilgrimage there ; indeed, he is not entitled to the name of pilgrim until after this auspicious event.

    " Seven hundred thousand pilgrims, then, met at this holy place in the first part of May of the present year.   They came badly clothed, badly fed, many exhausted, and all fanatically ecstatic.   To them death had no terrors and this common earth no future.   To die was to enter Paradise the earlier ; the transition from life to death a mere dream, the prevention of death a curse rather than a blessing, and pain even an ecstasy.   In years past this vast multi-tude has never assembled without being subjected to the ravages of some disease.   How could such a catastrophe be avoided ?   They come together unprepared for all the exigencies and necessities of life.   They have no encampment worthy of consideration, no suffi-ciency of food, no sufficiency of water, no latrine, no drain, no one ready or willing to bury their dead, no fixed object that can be called mundane.   Into such a host as this, cast a speck of disease-producing matter that will reproduce disease, and the passively unwholesome living mass becomes actively poisonous.   Stripped of its robes of flesh, it may enter Paradise pure ; on earth it is a damnable heaving heap of pestiferous rot.   Unfortunately, too, it is a movable pest, for of the hundreds of thousands attacked few after all reach the

goal they long for. Despite fanatical hope, the majority remain tied to the earth, and these, when the great celebration is over, dragging vast miles homeward as immortalised *Haji*, before whom common mortals must uncover, carry with them the germs of disease, and disseminate it wherever they go. . . . .

" From Alexandria the epidemic seems to have spread to Cairo. On July 5th it was announced that 118 deaths were due to the disease, 107 of them being children, while in Cairo the epidemic was stationary. On the 12th the deaths in Alexandria had fallen to 55 in the day, and the disease was declining in Cairo and the surrounding villages.

" It is worthy of remark, that during the course of the epidemic in Alexandria, the city was visited by a violent wind-storm from the south called " chamsin." This wind began to blow on June 24th, and continued until July 6th. It is said to be extremely oppressive in its character, and it was believed to intensify the epidemic. Thus, on the first day after the occurrence of this wind the mortality rose from 183 to 193, on the next day to 208, and on the next to 214; then it began to fall day by day as follows—from 214 to 209, from 209 to 197, and from 197 to 196; then there was a sudden rise to 228, with a fall next day to 176, and on the following day to 118; rising once more—viz., on June 6th, to 132, and on the following day, being the last of the wind, to 142. The reader will see from these figures that, however striking the view might appear to an Alexandrian that this depressing south wind has to do with the fluctuations of the disease, it is not a view which is very tenable. It is an almost common error into which people who live on the site of an epidemic fall, to connect any and every atmospheric phenomenon with the prevailing disorder. Too often, however, such supposed connexion is mythical; and that it was mythical in the present instance is, we think, proved not only by the figures, but by the further intelligence which the telegraphic despatch of July 8th brought to us. Sufficient was stated to indicate that causes sufficiently local were at work to account for all that was observed, independently of this particular southern wind. It was found that the disease made little way in the European portions of the town, and that the better class Europeans escaped almost altogether. The malady spread amongst the Arabs, who dwelt, we are told, in dwellings of the most loathsome character, which were shared equally by man and beast. At the same time, the food of these people was deficient in quantity and bad in quality; while, owing to the excessive heat and the low state of the river Nile, the water they had to drink was actually putrid. These terrible evils were greatly exaggerated by personal uncleanliness and by superstitious indifference to disease and even to death. Lastly, the independent nature of the disease, apart from the idea of the south wind, is proved by the circumstance that the disorder, attacking scarcely at all the European portions of the town, spread with great rapidity in the native villages of the Delta and in the towns of Tanta, Dhamanhur, Mansura, and Zagazig. Of course, the south wind would affect all alike, European and native; but the one class escaped while the other suffered.

" For some days it was hoped that the disease was localised at Alexandria and Cairo, but on June 15th, or, according to some reports, on the 12th, a few cases occurred at Ancona. Ancona is a sea-port of the Papal States, situated on the Gulf of Venice. It is, and has been for a long time past, the port of the Southern States at which the largest trade is carried on. It is the centre of a province containing 257,122 inhabitants, and itself contains nearly 40,000 inhabitants. Of late years its commercial relations have considerably increased, especially in reference to the exportation of corn. The town itself possesses a fine harbour, and the neighbourhood is usually considered healthy. But the streets of Ancona generally are narrow and close, like those of all towns possessing a great antiquity (and Ancona was a place of importance in the time of Trajan), while the drainage is inefficient.

" We have not as yet been able to ascertain how the town is supplied with water; but as all the Italian towns are much alike in this respect, and as no important reform in the water supply has been inaugurated in the Papal States, it is a fair inference that the water is as indifferent as the other hygienic requirements.

" From Alexandria, then across the Mediterranean Sea, and up the Gulf of Venice, letting alone Navarino, the Ionian Islands, and Corfu, on the East; and Malta, Syracuse, Reggio, and Cotrone, with many other towns on the west coast, the plague lands at Ancona. Presuming that it started from Mecca; it travelled in a line nearly due north-west between the 20th and 40th deg. north lat. and the 15th to the 40th east long. The question is, Did it travel at all, or were these four spots—Mecca, Cairo, Alexandria, and Ancona—spontaneously affected at nearly the same time with the one disorder? We think the evidence points indubitably to propagation of the disease by contagion in the line named. Given an epidemic of the disease amongst the pilgrims of Mecca, the next places of all others most likely to suffer would be Cairo and Alexandria. The disease at Alexandria, the town in the Papal States most exposed would be Ancona, the intercommunication being most perfect. But the epidemic did not confine itself to one line of march. Within two or three days before it was decidedly fixed in Ancona it appeared also in Constantinople, forty-three fatal cases having occurred in that city on July 13th. The disorder, thus taking Alexandria as its base, continued a north-westerly course, inclining, however, much more to the north, and leaving Sicily, the Grecian Archipelago, and, indeed, all the ports lying between Constantinople on the east and Ancona on the west, untouched. This, again, is the course we might expect the epidemic to take, granting that the method of propagation was by intercommunication. On this point, in so far as Constantinople is concerned, we are not left in doubt. The disease was brought from Egypt by a frigate loaded with stores, and charged with the infection. Dr. Dickson, of the English Embassy, reported on July 8th, that the cholera had appeared outside the walls of the Naval Hospital, ' where it was introduced from Egypt by the *Moubir Sourour*.' Thence it passed into the hospital, and on the 12th of the month thirty fatal cases in

all had occurred. From the hospital it spread into the city, and there established, for its temporary reign, it remains up to the present hour.

" By these degrees the epidemic became active at three great centres : *at Alexandria*, commanding the whole of the Mediterranean Sea, from Tripoli on the east to Barcelona on the west; *at Ancona*, commanding the Gulf of Venice ; *at Constantinople*, commanding the Black Sea. From these centres it has spread again to the points commanded by two of them. It has touched Gibraltar and the little island of Candia from Alexandria : and now from Constantinople it is reported as moving round the shores of the Black Sea, being at Varna on the western and at Trebizond on the southeastern coast.

" So far (Sept.) the limits of the present epidemic are marked out : they extend no further. The disease has in no single case taken an overland route, but has travelled from coast town to coast town as it has been carried. In this history there is nothing new, but everything that is old and, we had almost said, established. Least of all is there anything capricious about the disorder, as some of our unscientific contemporaries are fond to say. Cholera follows the sower of it, as does wheat or other grain ; and like wheat or other grain it must be carried on from shore to shore, and being carried must, even when landed and distributed, find a field prepared for it, otherwise it will not grow.

" To conclude, the current epidemic tells us, as every preceding epidemic has told us, three demonstrable facts—viz., that for cholera to be diffused over the earth it must have three factors for its cultivation—

" 1. A centre of pollution for its cradle.

" 2. A ship for its transport.

" 3. A number of cities and towns properly prepared for its reception and development."

[Subsequently the epidemic attacked Marseilles, the South of France, and Paris ; the sea-ports on the eastern coast of Spain, Seville and Madrid ; and towards the close of Sept. effected a lodgment at Southampton.]

Art. 2.—*Snow's Theory of the Cause of Cholera Explained and Illustrated.*

By Dr. B. W. Richardson.

(*Medical Times and Gazette*, October, 1865.)

The following able exposition of Dr. Snow's theory of the propagation of cholera, from the pen of Dr. Richardson, is of peculiar value at the present time :—

" The first element of the theory is to the effect that cholera, pathologically, is a disease exclusively of the alimentary canal; that the great primary change from healthy to diseased action is

at first locally confined to the alimentary tract; that on this there is rapid exudation of fluid matter from all parts of the body; and that the collapse, cramps, coldness, and other external symptoms of the malady are but results of the abstraction of water from the tissues.

"The second element in the theory is that the primary change in the alimentary canal is always induced by the introduction into the canal of a specific poison.

"The third element is that the poison itself is exclusively contained in the intestinal excreta of the infected person—that is to say, either in the vomit or in the matters passed by the bowels. There is nothing exhaled from the lungs, nothing from the skin of the cholera patient, that produces the disorder. It is all a question of the increase of poison in the alimentary canal, and ejection of poison from the canal.

"The fourth element in the theory is, that the poison is not a gas, is not a vapour, but a substance capable only of existence either in the fluid or the dried form of matter; *ergo*, it can only be wafted a little way by the air, and when it is in the dried state it can only be carried long distances by being attached to articles of clothing, or by being disseminated through the agency of water.

"These are the essentials of Snow's theory. They have been misunderstood because they have not been separated from certain broad and practical conclusions with which he carefully connected them, and which have been much misrepresented.

"The leading misrepresentation of the Snow theory is that he, Snow, connected the spread of cholera purely with the supply of impure water; and we constantly hear the theory spoken of as though the author of it, having no grounds to go upon, had a bare crotchet that because people drank bad water they took cholera. This is an utterly false view of the case. Snow only looked upon water as the great means by which the cholera poison was distributed. He said, and he proved, that if choleraic excreta be supplied to a community by and through the water which that community drinks, such process will prove the most determinate means of introducing cholera into the community, and that by such process great and sudden outbreaks of cholera will be secured. Acting on this thought, he actually advanced directly to the cause of the cholera during the terrible Broad-street epidemic in London, and, removing the handle of the pump by which choleraic poison was being dispensed to many hundreds of the population, he stopped the plague as if by magic. But while he held to this view of water as a means of propagating the poison, he enforced the opinion that there were other modes of transit. He puts these modes into four groups. First, he held that the moist cholera excreta on the clothes and bedding of infected persons might be carried mechanically by the *vapour* of water, and might enter the nostrils and mouth in that form, and so be swallowed with the buccal secretion. It was in this way, he believed, that laundresses engaged in washing the clothes of infected persons were so readily attacked. Secondly, he maintained that the poison might dry on infected clothing, and that from such clothing, on its

being unfolded or moved, the solid organic matter might escape in small substance, might be wafted a few feet in the air, and might, in fact, be absorbed through the mouth by any one exposed to it. Thirdly, in respect of nurses, persons who lay out the dead, and others in attendance, he urged that these might actually carry the poison on their hands, and infect themselves by taking their food while their skin was not properly clean. In mines and other dark places where many persons congregate, this, he thought, was a very common means of communication. Lastly, he concluded that the very utensils—such as basins and cups used by the sick—might convey the choleraic matter, or even the cloths on which such utensils, imperfectly washed, have been dried.

" Thus there was not a process by which the matter of cholera could be conveyed, omitted by Snow in his thesis; and we venture to state that if all his precautions were carried out, cholera would soon be an extinct disease.

" Another cause of misapprehension of Snow's theory deserves notice and explanation. It was unfortunate that the author of the theory died while yet the question to which we have yet to refer was under consideration. The question was, whether there exists a specific cholera cell capable of reproduction, and from the first of which all other cells proceed ; or whether there can be such a thing as a spontaneous generation of choleraic poison. It must be admitted that Snow, who was a staunch opponent of the doctrine of spontaneous generation, held by the cell theory, and was at first content to deal with the difficulties it suggested by comparing the origin of cholera poison with the origin of organic forms. Thus when he was once asked at the Medical Society of London where the first cholera cell came from, he answered by begging the questioner to tell him where the first tiger or the first upas tree came from; adding, ' I have no power to answer questions on the subject of ultimate facts.' Later, however, in his life he was beginning to re-consider the question of the origin of the poisons both of cholera and of typhoid fever; and had he lived, we doubt not that, guided by his clear and vast intellect, and his unbiassed nature, he would have modified his views in accordance with the natural truths that might have been presented to him.

" Is there any reason why at this stage of our knowledge we should ourselves modify that part of the Snow theory which treats of cholera poison as a reproductive cell capable of development only by reproduction? We think there is, and we believe that, in fact, such modification widens and strengthens the basis of the theory. The position seems to be this, that all the points Snow originally taught—in reference to the alimentary canal being the seat of the disease, and the alimentary excreta the poison of the disease, as well as in reference to modes of transmission of the poison—are confirmed ; but that, in addition, such poison may, under peculiar conditions, be produced without the intervention of a first case. It is not, however, probable, nor, as far as we can see, possible, for such generation of poison to commence in the living body itself. The evidence seems to point to changes occurring in

excreta that have been passed from the body. These excreta, during a process of special decomposition, become transformed into poisonous matter, which by its presence tends to excite the same change, in continuation, in similar matter, and which, introduced, by accident, into the alimentary system of the living body, excites a new organic secretion and reproduction of poison.

"That there are periods when organic matters in a state of decomposition undergo peculiar transformations, or, in other words, that the process of decomposition is not a uniform process, always accompanied by the same products, is now generally accepted by the physiological world as a truth the importance of which cannot be over-estimated. We shall hope, indeed, one day to show, on experimental demonstration, not only that organic matters yield particular products under particular conditions, but that those products are also particular causes of disease; and we believe that so far, and in accordance with this demonstration, the theory of Snow will have to be modified. We shall then, while retaining the essentials of his theory, accept them *minus* the dogma that there must be, it matters not how remotely, some connexion between one case and another case. We shall say that a case being in a community will communicate the disease if it be permitted so to communicate, and that, too, whether the case be an importation or a development; but we shall not say that necessarily the first case was an importation.

"In so far as practice is concerned, the whole experience of the present epidemic has been to show that choleraic poison, once developed, travels only in the manner suggested by Snow, and that all rational measures for suppression of cholera rest on a correct appreciation of his theory. Thus, at Constantinople, infected articles of clothing were washed in water which afterwards escaped to a drinking fountain; thus, in Paris, the disease is spreading by the aggregation of diseased with healthy persons; thus now, as in all former epidemics, it runs that those who attend most closely to the sick and wash the infected clothing die most speedily; thus it is that when the poison is introduced into or developed in towns where it cannot contaminate great supplies of water, the disease is localised and limited.

"The most striking illustration of the truth of Snow's theory has been given us at Epping in the outbreak which we described last week. There eleven persons were attacked and eight died. There the centre of the disease was on elevated ground; so that a low position had nothing to do with it. There the disease occurred with a falling in the mean temperature; so that heat had nothing to do with it. There the disease struck and destroyed before the sufferers had time to feel dread; so that fear was not the cause. There eleven people were attacked, while hundreds in the district and some in the house escaped; so that no pervading atmospheric influence especially affecting *individuals* had anything to do with the disease. There there was plenty to eat and plenty to drink; so that poverty had nothing to do with the matter. There there were persons young and old, and of different occupations and

sexes; so that age, sex, and habit had nothing to do with the event. And yet eleven persons were attacked. To what central and single source can we look for causation? It is before us. The sufferers drank from an infected well, or they came in contact with excreted matter from infected persons. It matters little whether Mr. or Mrs. Groombridge in their travels did or did not accidentally come in contact with excreted cholera poison, and did or did not communicate to the drinking-water of their house such poison: or whether that water, impregnated with organic matter derived from the closet of the house, became poisonous, under a special form of organic decomposition: the results are the same, and while we deplore the catastrophe at Epping, we cannot but express satisfaction that the outbreak occurred in a place from whence the choleraic virus could only be distributed amongst a limited number of the unfortunate."

ART. 3.—*The Non-Transmission of Syphilis by Vaccination.*

By W. BOECK, M.D., Christiania.

(*British Medical Journal*, September, 1865.)

Professor Boeck makes the following observations on this highly important question :—

"When the question of the transmission of syphilis by vaccination was brought before the profession, I examined the question with the greatest care, investigated all the documents on the subject, and published my conclusions in the *Christiania Medical Journal.* I found there was not one single case which could be held as conclusive of the transmission of syphilis by vaccination. But, in order to advance the position of the question, I determined to make some positive experiments on the question.

"On the 28th of June, 1862, Ole Johan Olavsen, two months old, entered the hospital of the University of Christiania. The child had an exanthematous syphilitic eruption of a papular kind, which afterwards became pustular, on the thighs and buttocks. The mother and father had been treated for syphilis by mercury. The child was at once submitted to syphilization. On July 10th, the child was vaccinated with matter taken from another child which was also under treatment by syphilization. I made several punctures on the left arm, and, on July 17, there were two well-formed vaccine pustules. On July 20th, I took from one of these pustules, on a lancet, vaccinal matter mixed with blood; and with this matter I inoculated two men suffering from elephantiasis Græcorum—one having the disease in the tubercular form and the other in the anæsthetic form. Both of them had been vaccinated in infancy, and neither of them had had syphilis. In the first case, on July 28th, there were three well developed vaccinal pustules on the left arm, and two on the right arm. These pustules were observed every day; and, on August 25th, I noticed that the vaccinal crusts had fallen, and that there was no trace

of syphilitic eruption. In the other patient, there were no results visible. It must be remarked, in reference to this observation, that subjects of elephantiasis can take syphilis as well as men perfectly healthy. I have seen several cases of this kind.

"On March 12th, 1863, Alf Olavsen, three months old, entered the hospital with roseola of the trunk, of the legs, buttocks, hands, and forearms. The mother had been treated five years before by derivation—*i.e.*, eruption produced by tartar emetic; and last year had a child, which died of hereditary syphilis. Alf Olavsen was the same day treated by syphilization. The child was vaccinated, the pustules being made as in the former case. The vaccinal matter, mixed with blood, was then inoculated in the same two cases of elephantiasis. The result was in both perfectly negative.

"On March 27th, 1865, the child Martin Gustav Amundsen, nine months old, entered the hospital with a maculo-squamous exanthem of the extremities, mucous tubercles of the perinæum and inguinal regions, also between the buttocks, and ulcers of the tonsils. On April 6th, he was vaccinated as in the previous cases. The vaccinal matter thus obtained, mixed with blood, was again inoculated in the two cases of elephantiasis; and again the result was entirely negative. These two patients were observed daily during three years, and never presented a single symptom of syphilis.

"I do not know if any direct experiments of this kind have ever been made by any other medical man; and I therefore consider that they have a certain degree of value. Vaccination is the greatest and most positive fact in our science; and it should not, therefore, be rendered suspicious, or have any doubts thrown over its excellence, unless on the most convincing evidence. I do not deny the possibility of the transmission of syphilis by vaccination; but I shall only believe in the fact when I see it. In Norway, where there is such great facility for following all the traces of contagion, never has the transmission of syphilis by vaccine been observed."

ART. 4.—*On the Probable Influence of the Meat of Cattle which have suffered from the Cattle Plague on the Public Health.*

By Mr. ——.

(*Lancet*, August, 1865.)

The public mind has been much agitated with the fear that the flesh of cattle killed while suffering from the cattle plague should find its way into the market, and exercise a disastrous influence over the health of the people. Dr. Crisp has sought to reassure the public by personal experiment on the consumption of the flesh of plague-stricken animals. A writer in the *Lancet* advances certain statements to the same end. The dread, he says, is natural. "It would seem in the highest degree improbable that the flesh of animals infected by so virulent a disease as steppe murrain could be

eaten with impunity.   There is, however, positive evidence to show that this opinion is largely erroneous.   Michel Lévy tells us that at the time of the outbreak of steppe-murrain among the herds of cattle which were collected for the use of the allied armies in 1814, none of the animals stricken with or dying from the disease were lost.   The flesh of the sick and healthy was alike used for food. The population of Paris, as well as the soldiery, fed for two months indiscriminately upon the meat thus obtained; and it was used by the sick in the hospital.   Nevertheless, no augmentation of illness was observed; no epidemic prevailed either amongst the troops or the people; and typhus, which had preceded the appearance of the epizootic, then ceased.   M. Coze, sen., chief of the Sanitary Commissions of the Lower Rhine from 1815 to 1817, made extensive and exact observations on the effects of meat derived from cattle affected with rinderpest.   During the last six months of 1815, the epizootic ravaged, without break, the flocks in the district under his superintendence;   and the forces and inhabitants of the country lived, without suffering any ill effects, upon the flesh of animals which had died from the murrain.   When the French army was encamped beneath the walls of Strasburg not a single healthy animal was killed for its use or for the use of the National Guard. A thousand large cattle, M. Coze asserts, for the most part extremely ill, many even at the point of death from rinderpest, were consumed during and after the investment, without any malady being produced by the aliment, or, indeed, the digestive organs disturbed. The observations of Parent-Duchatelet, J. P. Frank, Huzard, and others, confirm those of M. Coze.   Mr. Simon states that he has been informed that some years ago, during an epidemic of steppe murrain in Bohemia, the poor people were in the habit of digging up for food the carcases which the authorities had had buried, and that no harm was observed to result from this practice.*   Finally, Liebig avers that the poisonous matter of rinderpest loses its noxious properties in the stomach.†

" Subsequent observation may modify the conclusions to be drawn from the foregoing facts and observations.   But this at least appears to be clear, that no immediate and manifest evils have followed the use of meat derived from cattle affected with rinderpest.   To this extent, then, it may be well to reassure the public; but it is not the less certain that upon general grounds it is advisable that every care should be exercised to prevent the sale of diseased meat. Whilst seeking to allay any natural alarm, which would still further restrict the already too limited supply of animal food, it is not to be supposed that the sale of infected meat is thereby recommended or encouraged.   The lesson sought to be inculcated is this—that, rinderpest being present amongst the herds, if beef offered in the districts where the epizootic prevails presents no indication of disease, and is served at table thoroughly well cooked, it may be eaten

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* Fifth Report, p. 30.
† Chemistry in its Application to Agriculture and Physiology.   Third edition, p. 375.

without an afterthought ; and thorough cooking, it may be observed, is more certainly secured by roasting than by boiling.''

ART. 5.—*On the Anatomical Lesions of the Cattle Plague now Prevalent in London.*

By C. MURCHISON, M.D.

(*Lancet,* August, 1865.)

Dr. Murchison gives the following interesting account of the results of certain autopsies of cattle which had died from the pre-valent cattle plague :—

"During the last few weeks I have dissected a considerable number of cattle which have died of the present epidemic disease, in all its stages. Although my observations are not yet ready for publication in detail, a brief notice of the principal morbid appear-ances which I have found will at the present moment not be devoid of interest.

"The main anatomical characters of the disease, according to my observation, are catarrhal inflammation of the lining membrane of the respiratory passages, of the digestive canal, and, in fact, of the mucous membranes generally, a more or less fluid condition of the blood, and ecchymoses or hæmorrhages in various parts, such as beneath the skin, beneath the mucous membrane of the stomach and bowels, beneath the endocardium, and beneath the arachnoid on the surface of the brain. The parts which are most altered from their healthy condition vary considerably in different cases.

"The lining membrane of the nasal passages, and more parti-cularly of the windpipe and bronchial tubes, is almost invariably much inflamed. The mucous membrane is more or less reddened, and its surface is coated with a viscid fluid and with numerous soft membranous flakes of yellowish exudation, some of them an inch or more in diameter. These flakes are easily scraped off from the sub-jacent membrane, which often presents a raw or excoriated aspect, but never any appearance of an eruption on the surface, or of sub-mucous deposit. The bronchial tubes are often filled up with frothy mucus and with the inflammatory products thrown off from the mucous membrane, but the lungs and pleuræ exhibit little congestion, and no sign of inflammation, except as occasional complications.

"The mucous membrane of the digestive canal is inflamed throughout, but in some parts the inflammatory signs are more intense than in others. On scraping off the thick layer of epithe-lium from the first two stomachs, which is done with abnormal facility, the subjacent membrane is found to be intensely red. The mucous membrane of the third stomach, or *omasum,* is still redder, and often presents patches of ecchymoses. It is in the fourth stomach, or *abomasum,* however, that I have found the inflamma-tion most advanced. Here there is not only intense redness with

much adhesive mucus on the surface, but the membrane is studded with numerous minute superficial ulcers, like those erosions which are so common in the ordinary catarrhal inflammation of the human stomach. In addition, the membrane often presents extensive patches of claret-coloured discoloration, apparently due to sub-mucous extravasation. These patches are often surrounded by a distinct fissure in the mucous membrane, and, in some instances, the mucous membrane corresponding to the patch is in a gan-grenous state, and more or less detached.*

" The small intestine is more or less inflamed throughout, but the inflammation is usually most intense about the middle. The coats of the bowels are much attenuated and softened, while the mucous membrane is intensely injected, and sometimes ecchymosed and deprived in a great measure of its epithelium covering, but coated with a quantity of transparent and viscid, or opaque and puriform, secretion. I have failed to discover any change of the solitary glands of the ileum which could be ascribed to the disease. Peyer's patches are usually less vascular than the surrounding mucous membrane, and throughout the disease very much less elevated and thickened than in a healthy animal. Their component glandules are more distinctly seen, because the epithelium covering, which obscures them in health, has been mostly removed. Many of the glandules seem empty, while others contain a minute drop of softened secretion like pus, which can be squeezed out by the slightest pressure. There are no submucous deposits, and none of the lesions running through the definite stages, which I am familiar with in the typhoid or enteric fever of man. In this opinion I am corroborated by Dr. A. P. Stewart, Mr. Simon (Medical Officer of the Privy Council), Dr. Buchanan (my colleague of the Fever Hospital), Dr. J. Burdon Sanderson, and many other physicians who have dissected the animals, either in conjunction with me or independently.

" It is right to mention, however, that in all the cases which I have examined, many of the solitary glands, and sometimes certain of the component glandules of Peyer's patches, have been greatly enlarged, filled with a soft cheesy matter, and sometimes even ulce-rated on the surface. A drawing of an inflamed piece of bowel studded with these enlarged glands might readily be thought to represent the lesions of enteric fever. Careful examination, how-ever, clearly shows that the appearances in question are of old standing, and quite unconnected with the disease of which the animals have died. This view of the matter is confirmed by the fact that I have found precisely similar appearances, in some cases indeed even more strongly marked, in the small intestines of every one of four healthy oxen which I have examined. I remember, also, Professor Goodsir of Edinburgh describing this common con-dition of the intestinal glands in cattle, in his lectures on Com-parative Anatomy, nearly twenty years ago.

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* Mr. Simon informs me that he has found these appearances most marked in the *omasum*.

"The lining membrane of the large intestine is also inflamed. It is always more or less reddened, the redness being greatest over the prominences of the rugæ. Here also may be seen patches of ecchymoses, and sometimes superficial excoriations. The surface is coated with a quantity of viscid mucus, more or less opaque, and often mixed with blood.

"The contents of the bowel are fluid, and consist of fæces mixed with inflammatory products and often with blood.

"The vagina, bladder, and urinary passages often, but not always, present signs of inflammation. The kidneys are often intensely hyperæmic, and the uriniferous tubes gorged with finely granular epithelium.

"The liver and spleen appear healthy. The bile is thin, and of a light-green colour. The mesenteric glands contain none of the abnormal deposit met with in the enteric fever of man.

"The tissue of the muscles presents no alteration of its microscopic structure.

"Lastly, it is worth mentioning that in several animals suffering from the disease, which had been killed, the diseased organs appeared to me to be returning to a healthy condition; and that from personal observation I am satisfied that many animals are now condemned, and sent to the knacker's yard, which are suffering from maladies totally different from the prevailing epizootic."

Art. 6.—*On Hospital Dietaries.*

By John Beddoe, B.A., M.D., F.S.S., Physician to the Bristol Royal Infirmary.

(*Dublin Quarterly Journal of Medical Science*, August, 1865.)

Dr. Beddoe conceived the idea of testing the sufficiency of the diets of the Bristol Royal Infirmary, by weighing the convalescent and chronic invalids at intervals, and at the same time examining the urine, roughly determining the amount of urinary solids, and thus conjecturing, if not absolutely determining, the extent of waste or deficiency of food. From his observations he concludes that a convalescent hospital patient may often consume a very large quantity of food, without any, or without a commensurate increase of the urinary solids, but with considerable gain of flesh. In such a case he maintains that it is true economy to add largely to the ordinary diet, for by so doing the patient's sojourn in hospital may be considerably abridged, his power to work may be sooner restored to himself and the public, his bed will be sooner available, and the finances of the hospital will not, *quoad* the individual patient at least, be at all drawn upon. He by no means intends to affirm, however, that for the ordinary run of cases, where patients are not much emaciated, or reduced in muscular power, the diets usually employed, *e.g.*, the middle diet of the Bristol Infirmary, are at all

deficient in quantity: on the contrary, he has found that patients of that class, especially men of small frame, appear often to thrive upon them. The estimate of what Dr. Playfair calls a " subsistence diet," for a man without exercise, which he makes in his valuable lecture "On the Food of Man, in Relation to his Useful Work" (published since Dr. Beddoe's paper was written), is to some extent confirmed by this last observation, and Dr. Inglis's testimony to a similar effect is of value, as the diets at Worcester Infirmary approximate very closely to Playfair's standard. Returning to the subject of convalescents, Dr. Beddoe would again draw attention to the very large proportion of their food which, when they are liberally dieted, is stored up by them in increase of bodily weight. Pigs, according to Lawes and Gilbert, appropriate far more (nearly double) from their food than sheep and oxen ; and they seem to suppose this dif-ference to depend on the greater digestibility of their food, as much, or more than on an inherent difference of constitution and diges-tive power, as far as the two causes are separable. Now a fattening pig, they say, will consume daily about four per cent. on his live weight, of the dry substance of his food, and will yield one part of increase of live weight for nearly five parts of that dry substance ; i.e., a pig weighing 100 will consume 4, and add 0·8 to his weight, in one day. Only one of Dr. Beddoe's patients added to his weight at a greater rate than this ; but on the other hand, neither he nor any one of the others consumed more than $1\frac{1}{2}$ per cent. of his weight daily, in dry aliment ; so that the human convalescent gave a vastly greater return for his food than the fattening pig—a fact which might have been of great interest in the Fiji islands in the last generation, as proving the economic superiority of the " long pig." Dr. Beddoe attributes this difference in a small degree only to the superior character of the food of the men (for milk and meal will fatten men as well as swine), but chiefly to two causes, viz., the peculiar activity of the assimilative organs induced by the wasting and semi-starvation of an acute illness overpast, and the different chemical constitution of the increase in the two cases. That of the fattening pig consists mainly (sixty-five or seventy per cent.) of dry fat, while in the convalescent man it doubtless comprises much muscular tissue, blood, &c., which include a very large proportion of water.

One point of some practical importance is also noticed by Dr. Beddoe, namely, the necessity, which indeed is generally recognised, of allowing a very copious diet to consumptive patients. Phthisicals are with difficulty admitted into many hospitals ; but where they are so it is as foolish as it is unjustifiable to withhold from them as much nourishing food as they can digest.

ART. 7.—*On Diet as a Cause of Chronic Diarrhœa and its Complications.*

By Dr. J. H. SALISBURY.

In an important report to the Surgeon-General of Ohio on this subject, Dr. Salisbury remarks that the diseases arising in the soldier from too exclusive a confinement to a diet composed of any one kind of food are far more numerous than has been heretofore supposed. It has been long known that the too exclusive use of salted meat tends to the production of a scorbutic condition. More recently it has been shown that fresh meats also, under similar circumstances, produce the same morbid state. The scorbutic diathesis thus established is best counteracted by a free use of vegetable food and the vegetable-acid salts of potassa and iron. To the list of scorbutic producers Dr. Salisbury now adds the too large and exclusive consumption of *vegetable* food, especially that of an *amylaceous* and *leguminous* nature. This he pronounces to be in an eminent degree a scorbutic excitant. The morbid conditions to which it gives rise are, however, it is remarked, of a peculiar type, differing in many particulars from those produced by animal food, salted or fresh. When the scorbutic taint results from the too exclusive use of amylaceous and leguminous food, it is best treated, not alone by the free use of vegetables and the vegetable-acid salts of potassa and iron, but requires in conjunction with the latter *albuminous animal food.*

The abnormal states produced by too exclusive a use of flesh are chiefly shown in the mouth and skin. The blood becomes thin, with little or no tendency to the formation of fibrinous deposits ; whereas the scorbutic taint resulting from a diet too exclusively amylaceous exhibits itself first in a deranged condition of the alimentary canal and nervous system, with a remarkable tendency to fibrinous depositions in the heart and lungs. Both forms of scorbutus are often attended in their course by pains and soreness of the extremities and back, simulating the sufferings from chronic muscular rheumatism.

According to the experience of Dr. Salisbury, the chief of the diseases peculiar to the army, and which have not been found amenable in any extent to the same treatment which has been found the most successful in apparently similar diseases occurring in civil practice, are referable to certain abnormal states induced by insufficient and imperfect alimentation and fermentative conditions, with a peculiar scorbutic taint developed by a diet too exclusively amylaceous. In this group of diseases incident to the army may be placed, *chronic diarrhœa ; paralytic conditions, fibrinous depositions in the heart and pulmonary vessels, tendency to tuberculosis, loss of voice, so-called muscular rheumatism, and various affections of the eye and ear.*

It would be by no means unprofitable to follow the author in his exposition of the facts and observations upon which he predicates his peculiar views in respect to the effects upon health of a too exclusive diet of amylaceous food, and the class of diseases thereby induced ; we must content ourselves, however, with the presentation only of Dr. Salisbury's general conclusions in his own words.

"1. Vegetable food, and especially that of an amylaceous and leguminous character, when too exclusively and continuously used, produces fermentative and scorbutic conditions.

"2. These conditions show themselves in the following abnormal states, viz., the formation of fibrinous masses (*embolia*) in the capillary vessels of sensitive, irritated, and irritable parts, resulting in congestions, inflammations, diarrhœa, paralytic tendencies, loss of voice, and diseases of the eye and ear, with pains and aches in the extremities and back, and also a disposition to morbid cell development, from which results tubercular depositions in the lungs.

"3. The abnormal conditions excited by an amylaceous and leguminous diet require as dietetic and remedial means albuminous animal food, instead of vegetables, with antifermentives for controlling zymotic action : in conjunction with which are indicated the vegetable salts of potassa and iron, for promoting the solution of the fibrinous clots and thinning the blood, and encouraging intestinal epithelial activity, absorption, and secretion.

"4. These conditions are developed mostly during and immediately following campaigns, where the men are confined too exclusively to an amylaceous diet.

"5. The officers who carry with them variety of food, with the means for cooking it, are exempt from this class of diseases.

"6. The first manifestation of abnormal tendencies, after beginning to feed too exclusively upon amylaceous or saccharine food, or on any of the products of its fermentation, is constipation.

"7. This constipation is soon followed by fermentative changes, and the development of intestinal gases and yeast plants in the food too long delayed in the alimentary canal.

"8. As soon as gases begin to develop in the intestinal canal, yeast plants begin to form in the alimentary matters to an abnormal extent.

"9. This development of yeast plants is evidence of the inauguration of fermentative changes in the amylaceous food.

"10. Such fermentation and development of yeast plants continue to increase till a diarrhœtic condition is produced.

"11. A peculiar gelatinous, algoid matter—usually in little masses scattered through the fæces—shows itself, to a greater or less extent, as soon as the diarrhœa commences. Generally this algoid (colloid) matter is present in direct proportion to the severity of the disease.

"12. This algoid development is not the cause of the diarrhœa, but merely the consequence of certain saccharine and fermentative conditions of the system, in which state the alimentary canal becomes a proper nidus for its development. As soon as these systemic conditions are overcome, this algoid vegetation ceases to develop,

XLII. 2

and disappears entirely from the fæces. It hence may be regarded as merely the consequence, and not the cause, of certain systemic conditions. Its development appears, however, to act as a poison, and increases the intestinal lesions.

"13. The system on an amylaceous diet becomes highly saccharine and fermentative, so that even the mucous secretions often contain sugar, and pass rapidly into fermentative states, developing yeast plants.

"14. This saccharine condition is abnormal, and appears to be a peculiar type of the so-called *scorbutic taint*, and yields more readily to an albuminous diet, with anti-fermentive and vegetable acid salts of potassa and iron, with iodine in small, frequent, and unirritating doses, than to any other dietetic and remedial means.

"15. The fermentative changes in the alimentary canal are always more active towards evening and during the night, and go on increasing from day to day.

"16. Finally, the gases and yeast plants developed, produce so much intestinal irritation that diarrhœa ensues, which soon becomes chronic and not at all amenable to the treatment for ordinary diarrhœtic conditions.

"17. Accompanying the fermentative changes is always a paralytic tendency, more or less strongly marked. This is manifest in the alimentary canal, and especially in the large intestines—next in the extremities—the legs prickling and getting asleep frequently, with ringing in the ears, and a numb, mixed up, confused feeling in the head, etc.

"18. This paralytic tendency appears to arise from defective nutrition and the pressure produced by the clogging up of the capillary vessels with fibrinous masses, from which results serious congestions, &c., as in the intestinal walls, nerve centres, lungs, etc.

"19. A cough, with more or less hoarseness, usually sets in, especially during the night and on getting up in the morning, accompanied by the expectoration of a thick, sweetish, cream-coloured mucus.

"20. This is followed by more or less constriction in breathing, with frequently palpitation of the heart on any excitement.

"21. In this condition of the system there is usually a remarkable tendency to fibrinous depositions in the heart (*thrombosis*), and to the clogging up of the pulmonary vessels with fibrinous masses (*embolia*), with tubercular tendencies, and pains and aches in the extremities and back, simulating muscular rheumatism.

"22. The disease, so fatal in animals, known as 'hog cholera,' is the same abnormal state of the system as the chronic diarrhœa of armies, both arising from the same cause, viz., the too exclusive feeding upon amylaceous or saccharine food, or upon the products of their fermentation.

"23. The primary lesion appears to be the clotting of the blood or the aggregation of fibrinous masses in the capillary vessels and heart.

"24. There is a strong probability that the conditions of the system, which result in diabetes, are similar to those producing

chronic diarrhœa. There is also evidence, that the conditions of the system which result in bronchocele are similar to those which give rise to chronic diarrhœa; the former disease occurring in persons habitually subsisting from infancy on a diet too exclusively vegetable and amylaceous, while the latter has its origin in the too exclusive use of the same kind of food at any period of life, by those whose system has been previously accustomed to a mixed animal and vegetable diet.

" 25. There is strong evidence, also, that the condition of the system which gives rise to summer complaints and fluxes in children, especially those in which the stools are gelatinous (*colloid*) and green (*the so-called colloid matter*) is similar to that which results in chronic diarrhœa. It appears to be caused by the too exclusive and continued use of starchy and saccharine substances and fruits, in which children are largely indulged.

" 26. The colloid matter of chronic diarrhœa appears to be algoid, belonging to some of the lowest vegetable forms.

" 27. This algoid matter is not the cause of chronic diarrhœa, but merely the consequence of certain glycogenic conditions of the system, brought on by feeding too exclusively upon amylaceous food. After it begins to develop in the alimentary canal, it tends to exhaust the system and aggravate the lesions and the disease.

" 28. Sugar, vinegar, carbonic acid, and even alcoholic beverages, when too exclusively and continuously used, tend to produce a similar condition of the system with that from amylaceous food.

" 29. Thus amylaceous and saccharine matters, with the products of their fermentation, when too exclusively and continuously used as food, or otherwise introduced into the system, give rise to similar lesions, and abnormal conditions, and tend to produce in the heart and capillary vessels, fibrinous depositions, which give rise to thrombosis, congestion, and hepatization of lungs, congestion, and inflammation of the intestinal walls, with damming up of the blood in the capillaries that nourish the nerve-centres and extremities, resulting in paralytic tendencies, with sometimes loss of voice and diseases of eye and ear.

" 30. The above make up the great mass of the most obstinate, lingering, and fatal diseases of the army, causing a greater amount of mortality and more suffering among the soldiers than the casualties of the battle-field and all other diseases incident to military life combined. Hence, if we would prevent the occurrence of these diseases, a change from the present army diet must be made."

According to Dr. Salisbury, this change is to be effected by substituting for the present army ration, *desiccated beef and vegetables*, which are, besides being sufficiently nutritive, antiscorbutic and antifermentative. They are, also, exceedingly light, and would enable the soldier to carry with him with greater ease provisions for thirty days than he can, with his present rations, provisions for five days. The substitution suggested would incur no additional expenditure. With desiccated food, the heavy and cumbersome commissary trains, that so impede the movements of an army, could also be dispensed with.

At present, as Dr. Salisbury remarks, the bulk and weight of the soldier's food consist, to a very large extent, in the water combined with his rations. This water can almost always be supplied from the springs, brooks, and rivers he meets along his line of march. In desiccated food this enormous weight of water is got rid of, while the meat and vegetables are also greatly reduced in bulk by compression. This form of food has been already submitted to a practical test, as a campaigning diet, during the Arctic expedition of Dr. Hayes, and found to answer fully as a good, nourishing, anti-fermentative and anti-scorbutic diet. In Dr. Kane's expedition this form of food was not used, and the men suffered much from scurvy and chilblains; whereas in the expedition of Dr. Hayes, although it penetrated to a point much further north, yet not a solitary case of scurvy nor a single chilblain occurred among the men.

Beans and peas have a decided tendency to produce indigestion, flatulence, intestinal irritation, with its intercurrent derangements. Dr. Salisbury suggests, therefore, their entire abandonment as army food.

Art. 8.—*On the Mephitism produced by the Confined Air of the Boilers of Steamboats.*

By M. FONSSAGRIVES, Chief Physician of Marine, Professor of Hygiène to the Faculty of Montpellier.

(*Annales d'Hygiène Publique*, Avril, 1865.)

In October 1861, two men were asphyxiated on entering the boiler of a steamboat in Honfleur harbour for the purpose of cleaning it. A third man was also asphyxiated in attempting to save the former. The symptoms were serious, but they differed in some respects from ordinary asphyxia. For instance, and more especially, there was a superficial cauterisation of the exposed mucous membranes. Insensibility continued twenty-four hours, and was accompanied with more or less convulsion. An ataxo-adynamic condition, with photophobia, and a species of hydrophobic aversion for drinks, followed. Also an abundant diarrhœa, stomatitis, and ophthalmia. Convalescence was established in four days. All the cases recovered. M. Bourel-Roncière, who had charge of the cases, attributed the accident to ammoniacal gas contained in the boilers, and disengaged during the oxidation of the iron. M. Fonssagrives, from an examination of the different documents published respecting the accident, does not accept this conclusion. He has serious doubts on the capability of ammoniacal gas to occasion symptoms of the character observed and so rapidly produced in these cases. Admitting that ammoniacal gas might exist in the boiler of the ship, he thinks that the superficial cauterisations were to be assigned to its influence. But he holds that some subtle poison, which chemistry has not yet demonstrated or isolated, and which is probably produced by the decomposition of organic matters,

must be assumed to have co-existed with the ammoniacal gas. The symptoms he thinks were those of an intoxication, not of an asphyxia.

The asphyxia occasionally observed among workers in drains, privies, &c., and attributed to carbonic oxide, sulphuretted or carburetted hydrogen, he also believes is frequently a true intoxication by organic poisons.

The accidents recorded require that certain precautions should be adopted in cleaning the boilers of steamboats, and these are summed up thus:—

1. The air contained in a steamboat's boiler, shut up for some time, may become mephitic and expose to serious danger workmen who enter the boiler without precaution.

2. A layer of sea-water at the bottom of the boiler appears to favour the change of the contained air.

3. The boiler ought then to be emptied as completely as possible.

4. If the vessel rests long at anchor, the man-holes, draft-eyes, and valves should be opened frequently, so that the interior air communicates freely with the external atmosphere.

5. When the boilers are about to be cleansed, three or four days before the man-hole and auto-claves should be opened, and if any water remain at the bottom of the boiler, this should be well and frequently agitated by means of one of the fire-irons or a paddle.

6. This being done, a lighted candle should be introduced, and the state of the flame as it descends noted. If the flame does not diminish in brightness or size the boiler may be entered without inconvenience. If the contrary happens, the boiler must be ventilated by means of a chafing-dish placed at the man-hole, or by a wind-sail. It is necessary to remember that the test with the candle is of no value unless it be prolonged over a quarter of an hour at least ; and that it should be repeated after the water has been removed from the bottom of the boiler.

7. In every case, the workmen who enter the boiler, should have a cord fastened round the waist, the end of which is retained without, so that they be at once extricated in case of accident.

8. Generally the treatment of the form of mephitism arising from the confined air of the boilers of steamboats may be stated thus : In the first period, characterized by loss of knowledge and suspension of respiratory movements, the necessity of having recourse to the means habitually employed for practising artificial respiration is indicated. Cutaneous faradisation would, doubtless, be useful to reawaken the sensibility by a painful revulsion ; and, by analogy it may be supposed that cold affusion of the head and vertebral column would be serviceable. In the second form, when the heat returns, and the circulation and respiration are established, the treatment must depend upon indications which cannot be foreseen, and which will depend essentially upon the form which the reaction takes.

ART. 9.—*On Marriages of Consanguinity in the Commune of Batz.*

By Dr. AUGUSTE VOISIN.

The influence of marriages of consanguinity upon the offspring is much debated. Whilst some authorities maintain that consanguinity exercises no prejudicial effect when the parents do not suffer from any hereditary malady, the majority consider that it is of itself noxious, and determines diseases, degenerations, and vices of conformation, such as insanity, epilepsy, idiocy, cretinism, deaf-muteness, blindness by pigmentary retinitis, albinism, sterility, abortion.

M. Voisin, thinking that to study the question well consanguinity should be observed among populations numbering few families, passed a month in the market town of Batz (Loire-Inférieure), of which the inhabitants have for ages habitually intermarried, so as almost to isolate themselves from external relations, which, indeed, they seem to despise.

He studied there forty-six families which had intermarried. He investigated the antecedents of husband and wife; examined their children intellectually and physically; he questioned the mayor, the priest, and the old people, and as a result, he was unable to discover that consanguinity had led to any disease, degeneration, or deformity. The race was very pure and very beautiful.

Dr. Voisin believes that this arises from the exceptional climate and topographical condition of the country, the hygiène, habits, and morality of the people, and absence of any morbid hereditary tendency.

The commune of Batz, near Croisac, is situated on a peninsula, bordered on one side by the sea, on the other by salt marshes. The air is bracing; the most frequent winds from the north, north-east, and north-west; the number of inhabitants 3300. The communications of the people with the rest of the department are very limited; their work consists in collecting salt, and their habits, not less than taste, attach them to the soil. Their intelligence is very high: all the adults read. Their bearing before strangers is reserved, almost savage; among them family life exists in all its fulness; after the day's work each sits at the family hearth. The costume, with few exceptions, is such as it has been for ages. That of the marshmen and marsh-women appears to be perfectly appropriate to their work, which exposes them to extremes of temperature and to the night, and to protect them from maladies which might arise from this exposure.

Drunkenness is rare; prostitution does not exist; debauchery most exceptional; concubinage unknown. Robbery, assassination, and other crimes of every species, have never occurred in the commune, according to the authorities and old people.

Infants are suckled by their mothers for a year or fifteen months.

The food consists almost entirely of farinaceous matter, milk, pork, and wine.

The most frequent diseases are acute pulmonary catarrh, rheumatism, hydropsy with albuminuria, and cerebral apoplexy (*foudroyante*). Cancer is unknown; tuberculous and scrofulous affections are very rare. A young girl only, at the present time, suffers.

Measles is often deadly among the infants, and cholera prevailed violently in 1832.

Deformity, mental disorders, idiocy, cretinism, deaf-muteness, epilepsy, albinism, blindness from pigmentary retinitis, do not exist in any individual, whether the issue or not of consanguine parents. Premature confinements are frequent, and are attributed by the midwives to the severe labour which the women undergo, and which is performed with naked feet, in the marshes, both by night and by day, and renders necessary the carriage of heavy vessels full of salt upon their heads.

Among the unions between relatives, five women only (four related in the third degree with their husbands, one in the fourth) have miscarried.

There exists in the commune forty-six unions between relatives of a near degree: five between cousins-german; thirty-four between cousins issue of german; ten between cousins of the fourth degree.

Five marriages between cousins-german have produced twenty-three children, of which not one is infirm from birth. Two have died from accidental maladies.

Thirty-one marriages between cousins issue of german have produced 120 children, of which no one suffered from a congenital affection or infirmity. Twenty-four have succumbed to acute maladies.

Ten marriages between cousins in the fourth degree have given birth to twenty-nine children, all healthy, except three, which have died from acute diseases.

The health of the father and mother of these individuals is or was good, and exempt from all diathesis.

The health also of the individuals themselves and of their children is excellent; they are mostly very tall, and the configuration of their head corresponds, in the majority, to a sole type.

Sterility exists in two families only of the forty-six Dr. Voisin studied (the spouses being relations in the third degree).

These facts, Dr. Voisin thinks, seem to prove, in reference to Batz, and generally of intermarriages, that under circumstances of good selection, so-called, consanguinity does not in any fashion injure the race; but that, on the contrary, it exalts the good qualities, as it would do the defects and causes of degeneration.

ART. 10.—*On the Influence which Consanguinity in the Parentage exercises on the Offspring.*

By Dr. MITCHELL, Deputy-Commissioner of Lunacy for Scotland.

(*Edinburgh Medical Journal*, June, 1865.)

Dr. Mitchell, from an elaborate examination of this question in certain districts of Scotland, concludes :—

1. That consanguinity in parentage tends to injure the offspring. That this injury assumes various forms. That it may show itself in diminished viability at birth ; in feeble constitutions, exposing them to increased risk from the invasion of strumous disease in after-life, in bodily defects and malformations ; in deprivation or impairment of the senses, especially those of hearing and sight ; and, more frequently than in any other way, in errors and disturbances of the nervous system, as in epilepsy, chorea, paralysis, imbecility, idiocy, and moral and intellectual insanity. That sterility or impaired reproductiveness is another result of consanguinity in marriage, but not one of such frequent occurrence as has been thought.

2. That when the children seem to escape, the injury may show itself in the grandchildren ; so that there may be given to the offspring by the kinship of their parents a potential defect which may become actual in their children, and thenceforward appear as hereditary disease.

3. That many isolated cases, and even groups of cases, present themselves in which no injurious result can be detected. That this may occur even when all other circumstances are of an unfavourable character.

4. That, as regards mental disease, unions between blood relations influence idiocy and imbecility more than they do the acquired forms of insanity, or those which show themselves after childhood.

5. That the amount of idiocy in Scotland is to some extent increased by the prevalence of consanguine marriages, but that the frequency of these marriages does not appear to be nearly so great as has been generally supposed.

ART. 11.—*On the Means of Augmenting the Salubrity of Great Cities.*

By M. ROBINET.

(*Annales d'Hygiène Publique*, Avril, 1865.)

The most noteworthy of M. Robinet's observations is a proposal to ventilate the sewers by means of the fires of manufactories, in which large quantities of coal are consumed. He would connect the sewers with the flues of the furnaces, and thus secure a constant

current of extraction. Suppose, for example, that in Paris branches connected the main drains with the furnaces of the six large gas manufactories which supply the capital, and which are in operation night and day, is it not probable that a sufficient circulation of air might be maintained in the drains to purify their atmosphere? The idea is most ingenious.

Art. 12.—*On the Influence of Forests on Climate.*

By M. Becquerel.

(*Academy of Sciences*, May 22, 1865 ; and *Gaz. Hebd. de Méd. et de Chir.* June 2, 1865.)

The influence of forests on climate depends—1, on their extent; 2, on the height of the trees and their nature, whether with caducous or persistent leaves ; 3, on the power of evaporation of the leaves ; 4, on the faculty which trees have of rising or falling in temperature as any other bodies placed in the open air; 5, on the nature and physical condition of the soil and sub-soil. Forests also influence the character of running streams and of springs. That they are a protection against low winds is undeniable—this protection increasing proportionately to the height of the trees.

The evaporation from leaves is a powerful and continued source of humidity ; the least fall of temperature causes a deposition of aqueous vapour, and the water which results therefrom, and the rain, penetrate the soil directly if permeable, or indirectly through the roots, if the soil be not permeable. Numerous experiments have shown that the trunk, branches, and leaves of trees rise in temperature under the influence of solar heat. The mean temperature of the air above trees is in the North a little higher than that of the air, at the height of $1^m 33$ above the soil away from trees. M. Boussingault has ascertained by observations made by himself and other travellers in the equinoctial regions of America, in diverse localities, situated at the same altitude above the level of the sea, in the same latitudes and under the same geological conditions, that large forests and humidity tend to lower the temperature of the climate, whilst dryness and barrenness of the soil increase the temperature.

By cutting down the timber of a country, the soil of which is siliceous or silico-calcareous, the mean temperature of the air must be raised more than when the soil is of a different nature, other conditions being the same. The following example illustrates this : The western portions of Europe owe the mildness of their climate to the warm winds which blow from the desert of Sahara (which is situated under the same meridian) in a southern and south-westerly direction (south and south-west winds). Now, if in consequence of some great inundation, the sands of Sahara were to be covered with trees, they would not be heated by the sun, as they are now, and our climate would become more rigorous. This is precisely what takes place in the mean latitudes of North America. The

tropical regions of the American continent are covered over with extensive forests, immense savannahs, and great rivers, which cannot give rise to currents of hot air like the sands of Sahara, which, by blowing on to the regions situated in mean latitudes, would render their climate milder. Although in the same latitude, these regions are, therefore, colder than our own, as shown by the direction of the isothermal lines, and by the difference in the nature of the crops.

The effects produced by the cutting down of forests on springs and the volume of streams are of the greatest importance. Large springs are generally found on mountains. Forests equally contribute to the formation of springs, not only by the humidity which they cause, and the condensation of aqueous vapour which follows on a fall of temperature, but also by the obstacles which they oppose to the evaporation of the water on the soil, and by the roots of trees, which divide the soil, and by rendering it more permeable, they facilitate infiltrations. The following conclusions may be, therefore, drawn from the above considerations. According to the author:—

1. The extensive cutting down of trees diminishes the volume of running streams. 2. It cannot be as yet determined whether this diminution should be ascribed to a diminution in the annual fall of rain, or to a greater evaporation of the rain-water, or to both these causes combined, or to a new distribution of the rain-water. 3. The cultivation of barren and exposed lands dissipates some of the running waters. 4. In countries, the cultivation of which does not vary, the volume of streams appears to remain the same. 5. Forests not only preserve the volume of streams, but regulate and favour their flow. 6. The humidity in woods, and the intervention of roots for rendering the soil more permeable, deserve consideration. 7. The cutting down of trees which grow on mountains influences streams and springs; whilst the cutting down of trees which grow in plains only influences springs. It may, therefore, be seen that the influence of forests on climates is extremely complex. A forest, situated on the passage of a current of humid air charged with pestilential miasmata, sometimes preserves from its influence the region behind it, whilst the exposed region is afflicted with malarial disorders. The Pontine marshes afford illustrations of this; trees, therefore, purify the air from the poison of malaria.

Art. 13.—*On the Utilization of Fæcal Matter.*

By Dr. Lecadre, Vice-President of the Council of Public Hygiène and Salubrity of the Arrondissement of Havre.

Dr. Lecadre, who is the *médecin des épidémies* of his district, from a study of the different measures employed or proposed to utilize for agricultural purposes human excretions, arrives at the following conclusions:—

1. Rivers and canals existing in great cities ought not, under any

circumstances, to serve as drains for sewage : they ought solely to be taken advantage of, in this respect, as affording facilities for transporting it to districts where it may be used for fertilizing purposes.

2. The state of the Thames, poisoned by the sewage of London, should not be forgotten. It is contrary to all the laws of public health to suffer a river or canal thus to become polluted, and to all the laws of good economy to lose thus gratuitously a product so rich and precious.

3. The tubular system of drainage, although it has been happily applied to several parts of England, has not yet been sufficiently studied ; and it is so expensive that few cities in France could support the cost.

4. Hidden cesspools become sooner or later infected foci of putrid emanations ; by the infiltration to which they give rise they may poison springs and wells ; and they may even compromise the foundations of buildings.

5. It is necessary to return to the primitive system of moveable receptacles, or tubs and fixed receptacles ; and of the last-named the receptacles aboveground are better than those beneath the surface ; but in all cases fixed receptacles ought to be walled, cemented, water-tight, and sufficiently ventilated.

6. Wherever canals and rivers exist, they ought to be used for the transport of barges, which would convey the contents of the cesspools to the river-side communes.

7. France, Belgium, England, and Holland, are covered with railways, by means of which sewage might be conveyed by night, in closed moveable reservoirs, to the adjacent lands.

8. It is desirable that there should be formed in each department, as in Lyons, a syndicate, to further economically, to the profit of health and agriculture, the dissemination of the town sewage in rural districts.

9. It is necessary to avoid great depôts of fæcal matter, such as exist near Paris and Havre, and many other cities, and which exceed the actual needs of agriculture ; and it may be hoped that, from the facility of transmission and greater perfection of subterranean conduits, the necessity for these depôts will cease.

10. Fæcal matter loses much of its offensive character, whether in course of transport or at rest, if covered with dried, powdered earth, provided that this be argillaceous, or rather burnt according to the process of M. Salmon, or, still better, mingled with charcoal, as M. Maxime Paulet suggests. It may thus be disinfected on the instant.

11. Now that chemical studies lead to the discovery of new disinfectants, it is probable that, as in the case of sulphate of iron, already known for this property, other salts will be found still more effective for instantaneous disinfection, and which, like this preparation, will not prove injurious for agriculturists.

ART. 14.—*On the Distribution of Fever Cases in General Hospitals.*

By Dr. FRANCIS S. ANSTIE.

(*Lancet*, June 10, 1865.)

Dr. Anstie contributes the following observations on this important question :—

"I shall enumerate, first, the instances of typhus spreading in a general ward that have been collected by Dr. Murchison. 1. The outbreak at St. Bartholomew's in 1838, most ably described by Dr. West. 2. The instance, mentioned by Dr. Stewart, where an isolated case of typhus infected the rest of the patients in the ward. 3. Dr. Peacock's observation of the spread of typhus in the Edinburgh Infirmary when he was a student there ; and his statement that *he had seen typhus spread in several other general hospitals when the patients had been mixed*. 4. The observation by Dr. Murchison of an instance which occurred in the Edinburgh Infirmary in 1849, where three typhus cases admitted into a general ward containing thirty-eight beds communicated the disease to seven of the other patients. 5. The important fact that during the first six months of 1862, 272 cases of typhus which were admitted to six London general hospitals communicated the disease to 71 persons, of whom 21 died.

"I am at a loss to know on what principle these facts could be called [according to Messrs. Bristowe and Holmes], "few and meagre," even did they stand alone. That so many innocent persons should have been unnecessarily exposed to frightful risk, and that so many of them should have lost their lives by a disease quite different from that for which they entered hospital, was a terrible calamity, and a great, though unintentional, injustice—an injustice which could not be diminished by any theoretical considerations as to the probable lessening of mortality amongst those actually affected with fever. Observe, too, that one of the most signal instances of typhus spreading in a ward (that recorded by Dr. Stewart) started from a *single case* admitted. I particularly direct attention to this fact, because it is in itself so important, and because it has within my own knowledge recurred on several occasions. My friend, Dr. Way, has recalled to my memory an instance of which we were both witnesses in King's College Hospital some years ago (I think in 1856), where a single patient admitted with typhus communicated the disease to the patients *on each side of him*, and this was the beginning of an outbreak of typhus in the ward. I find in the *Lancet* of January 10th, 1863, an account of a similar occurrence at Charing-cross Hospital in the year 1862, where a single case of typhus admitted from Bedfordbury produced a disastrous outbreak of the disease, in which the patient occupying the next bed to the newcomer died, as did also the sister of the ward ; five other patients were affected, and two or three other persons (including a night

nurse) had abortive symptoms of the same complaint. At King's College Hospital, on December 10th, 1861, a single typhus patient was admitted, who communicated typhus to the patient in the adjoining bed and also to the nurse of the ward. And I am informed that this hospital (which is well known to be a model as to roominess and careful ventilation) was again the scene of an occurrence of this kind about eighteen months since, and that a lady sister and another nurse were among the victims of typhus thus generated in the wards. And to come to my own more immediate experience, I may state that the same thing has repeatedly occurred in the Westminster Hospital—so much so as forcibly to direct the attention of my colleagues, Dr. Radcliffe and Dr. Fincham,* to the great risks incurred by the other patients in wards where even one or two cases only of typhus fever are admitted. As the result of an inquiry into the subject of the spreading of typhus in general wards, our house-physician lately reported to the committee the remarkable fact that of thirteen cases of typhus at that moment under treatment in the hospital, no less than eight had contracted the disease in the house, and this certainly not from any want of such precautions as can be taken in a general ward. And this brings me to one of my strongest points. It is universally agreed that ventilation, to the freest extent, is a *sine quâ non* in the proper hygienic arrangement of a ward containing typhus patients. But, as a matter of fact, it is impossible to ventilate a typhus patient properly if he lie in a general ward ; for if you do so, his neighbours, who suffer from pneumonia, or bronchitis, or kidney disease, will take cold and perhaps die. It therefore seems to me useless to talk of the possibility of managing typhus cases with success in a general ward " by carefully attending to the ventilation," since in practice this cannot be done. Good fortune may sometimes (as in the case of the present St. Thomas's Hospital, cited in Messrs. Bristowe and Holmes's Report) exempt a ward thus situated from the occurrence of any spreading typhus for long periods together ; but the risk is always there, as experience has now amply demonstrated.

" I need hardly say that all the arguments above urged to prove the danger of mixing typhus patients with other cases apply with double force to the distribution of scarlatina cases ; for here we have to deal with a poison far more transmissible, capable of spreading to a far greater distance, than that of typhus. The danger of introducing scarlatina cases into a *children's* ward is fully set forth in an able pamphlet by Dr. Radford, of Manchester,† in which are quoted the opinions of many eminent physicians, including that of the respected President of the Royal College of Physicians. Most of the opinions cited in the pamphlet will apply equally to the danger of this mixing system for adults ; and, amongst others, it is inte-

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* In fairness I am bound to state, however, that our respected senior physician, Dr. Basham, still prefers the mixing system.

† A Plea for the immediate Establishment of a Reception-house, or Hospital, for the Treatment of Zymotic or Contagious Diseases of Children. By Thomas Radford, M.D., F.R.C.P., Ed. &c.

resting to note that Dr. Willshire (who had bitter experience of the mixing system at Charing-cross Hospital in 1862) 'disapproves of admitting contagious diseases amongst other patients in a general hospital.' Dr. Watson (who speaks, however, only as to children's wards) recommends the plan of separating zymotic diseases, and says—'The only possible or theoretical counterbalancing disadvantage would seem to be the risk of such diseases spreading in the reception-house through concentration of the poison of the zymotic maladies. But this objection might, in my opinion, be surely obviated by adequate ventilation, and by care not to crowd the rooms with patients.' This is a just and weighty remark, and ought to dispose for ever of the bugbear of concentration, since it shows that vicious arrangement to be a gratuitous evil, entailed by our own carelessness (where it occurs at all), and not a true result of isolation.

"And, in fact, when we turn from speculation to actual observation, we find in the experience of the London Fever Hospital a complete refutation of those opinions about the dangers of isolation and concentration which are so prevalent amongst the physicians of this metropolis. The records of that institution prove most effectually —first, that the mortality in properly ventilated fever wards is not higher, if so high, as that which prevails under the mixing system; second, that fever wards do not become a centre from which contagion spreads to other parts of the house, and that, provided the fever nurses be kept rigidly separated from communication with the rest of the hospital, typhus may be absolutely shut within the typhus wards; and even scarlatina may be similarly limited, provided due care is taken as to the washing and purifying of the patients' clothes by a seasoned individual, and in a secluded place. So far, then, as concerns the interests of the non-febrile patients in a general hospital, the inevitable conclusion appears to be, that we Londoners are exposing these patients to the very highest degree of risk, in order to avoid a danger which exists only in our imaginations; and in concluding this part of my argument, I cannot help adverting to a fact which no one can deny gives great force to it—viz., that our present system is one which has been adopted upon very imperfect information, and in opposition to the practice of the majority of the great Scotch and Irish hospitals, to say nothing of our own provincial establishments.

"The important question remains—what influence would the isolating plan exert upon the safety of the nurses and the medical attendants? The danger here is practically from typhus only, that from scarlatina being but trifling. In order to eliminate sources of confusion, we must remember that the risks incurred by persons exposed to the poison of typhus vary indefinitely with certain conditions personal to themselves. In the first place, those who have once had typhus are scarcely ever attacked a second time. And, secondly, supposing an individual to contract typhus, his chances of recovery are very great if he be young and tolerably healthy, but very small if above the age of forty-five or fifty, especially if weakened by previous ill-health or excessive fatigue. It is amongst these

subjects that deaths from typhus almost exclusively occur in the nursing staff of the Fever Hospital; and it has now become clear to the officers of that establishment that no woman past a certain age, unless 'protected,' should be allowed to nurse typhus cases. But in a general hospital it is impossible at present to provide this kind of safeguard. It would be perfectly easy, if there were separate fever wards, to find a sufficient number of attendants who were either young and robust, or already 'protected,' to do the limited amount of duty which would be required. But with the system of mixing, the risk of contagion falls with equal weight upon nurses whose age and state of health render them entirely unfit to stand the trial; and the unmistakable consequence of this is to be read in the serious losses which nearly every general hospital in London has sustained in its nursing staff. With regard to the medical attendants, precisely the same rules apply—viz., that it is unadvisable for weakly persons, or those beyond a certain age, to expose themselves to the risk of attending the typhus cases of an hospital. But if a medical man be less than forty years of age, and of good general health, he incurs, indeed, a certain amount of inevitable risk in attending typhus cases, or even a single typhus case; but this risk rarely extends to life. The experience of the various fever hospitals proves this in the most conclusive way. It is obvious, then, that under the present system the senior physicians of hospitals run a very serious risk indeed, from which they ought to be entirely delivered by the construction of fever wards, in which all typhus cases should be treated by their junior colleagues."

Art. 15.—On Contagion.

By Lionel S. Beale, M.B., F.R.S., Professor of Physiology and of General and Morbid Anatomy in King's College, London, &c.

In the course of two lectures on the nature of the phenomena which constitute "Inflammation," delivered at the Royal College of Physicians, Dr. Beale expressed certain views respecting contagion, of which the following is a summary:—

"The *materies morbi* of contagious diseases does not consist of lifeless organic or inorganic matter, nor of any form of gas or vapour generated in the decomposition of animal or vegetable substances, nor of any matter set free during the decomposition of fæcal or other excrementitious matter of animal origin; nor is it any species of animal or vegetable organism or parasite; but the active contagious material consists of exceedingly minute particles of living germinal matter, which may be regarded as the direct descendant of the germinal or living matter of an organism which has been for some time living under unusual conditions. Contagious poisons affecting men and animals have originated in their organisms.

The living or germinal matter of some contagious diseases originating in the bodies of animals may grow and multiply in man, and *vice versâ.* These particles of living germinal matter may retain their vitality for some time after they have escaped from the seat of their formation. They may pass through the air or be preserved in clothes, or various fluids, or moist solids. The smallest particle (less than the $\frac{1}{100000}$th of an inch in diameter) being introduced into the body already in a fit state for its nutrition, may grow and multiply, giving rise, in due time, to the symptoms characteristic of the particular disease, and producing myriads of particles like itself. But it is probable that such particles, being introduced into a perfectly sound organism in a state of perfect health, would not grow and multiply, but would die ; or, in other words, such an organism would resist the influence of the contagious matter. Some of the germinal matter forming the *materies morbi* of certain contagious diseases may retain its vitality for a considerable period of time in a comparatively dry state, like vaccine lymph. Knowing what we do of the protecting influence exerted by vaccination, it seems probable that the ravages of many other contagious diseases besides small-pox may be mitigated or prevented by the inoculation of certain forms of contagious matter which would produce allied but much less severe forms of disease. It seems desirable that numerous experiments should be instituted on cattle, with the object of ascertaining if any such protective influence would be really exerted."

(B) CONCERNING ACUTE DISEASES.

ART. 16.—*On Tracheotomy in Diphtheria.*

By Dr. L. HEADLAM GREENHOW, Assistant Physician to the Middlesex Hospital.

(*Lancet,* July 22, 1865.)

In the course of a series of lectures on diphtheria, Dr. Greenhow discusses the value of tracheotomy in an advanced stage of the disease. Trousseau operated in 200 cases, of which one-fourth recovered ; Bretonneau in 20, of which 6 recovered ; Bouchut in 160 cases, of which 45 recovered ; and Velpeau in 10 cases, of which he saved 2. Mr. Spence, of Edinburgh, has operated in 15 cases, of which 5 recovered. Many of the foregoing cases were doubtless croup, in which the operation is more likely to be successful than in true diphtheria. But Mr. Spence has had seven recoveries out of 18 cases of diphtheria ; and Dr. Buchanan 2 out of 8. This amount of success, in Dr. Greenhow's opinion, renders it imperative upon practitioners not only to recommend the operation in all suitable cases, but even to urge it in such cases at the time which affords the best hope of saving life, taking every precaution to insure those details of management after the operation

which contribute most essentially to its chances of success. Here, therefore, he says, arise three practical questions—as to the proper cases for tracheotomy, the proper time for performing the operation, and the proper management after its performance.

" With regard to the first question—namely, the proper cases for tracheotomy—you must never lose sight of the fact that tracheotomy is not in itself a curative, but simply a palliative measure ; that it is not performed with the view of saving life by arresting the disease, but only with that of preventing the disease from destroying life by its local effects. The proper cases for operation are, consequently, those in which the local effects constitute the only pressing danger, and are so situated that it is possible for tracheotomy to relieve them ; that is to say, when the urgent symptoms arise only from the obstruction to respiration, and when that obstruction appears to be situated chiefly in the larynx or trachea, and not below the point where the trachea can be opened. If, therefore, on auscultation, we discover the existence of pneumonia or extensive bronchitis, or if we have reason to believe that the exudation already extends in any considerable degree into the bronchial tubes, the operation would be useless, and should not be attempted. On the other hand, dulness on percussion, unattended by moist râles, and supposed to proceed from collapse of a portion of the lung, does not preclude the operation ; for, as we have seen, this collapse is caused by the very obstruction which the operation is calculated to relieve : but, at the same time, it very greatly diminishes the chances of success, by diminishing the patient's ability to cough up the membranous or mucous obstructions to respiration. The chances are still less in cases complicated by any of the symptoms due to the severity of the constitutional affection ; yet, even in such cases, if I found the laryngeal symptoms alone threatening imminent death, I should think it right to give the patient the respite and relief almost certain to be afforded by the operation, though I should not fail to apprise the patient's friends that the presence of such complications rendered the prospect of recovery all but utterly hopeless.

" Next, as to the proper time for performing the operation. It has been the rule in this country to defer tracheotomy until death from apnœa appeared imminent, and this postponement of the operation has in my judgment been one cause of its general ill success. I should, therefore, be inclined to lay it down as a rule, that in all favourable cases for tracheotomy, whenever medical treatment has failed to arrest the disease, and the cough and dyspnœa are becoming more and more urgent, and, above all, when any lividity from imperfect aëration of the blood makes its appearance, the operation should not be delayed. Whatever may be the risks which, in cases complicated with serious constitutional symptoms, render tracheotomy advisable only as a last resort against impending suffocation, it is in my opinion certain that, in cases not so complicated, the chances of success after the operation are in direct proportion to the promptness with which it can be performed after the accession of the symptoms indicating its necessity. This stands to reason, if the view I have taken of the causes of death in the case before

us be correct, for it is evident that the earlier performance of the
operation will give the patient a better chance of escaping the bron-
chial and pulmonary complications produced by the local obstruction
to respiration,

" It remains to consider the question of proper management after
the operation; for however successfully this may have been per-
formed, the danger is not therefore over—our duty is but half done.
The operation has indeed warded off death in its lately threatening
form, but the disease remains. A respite, however, has been secured,
during which the patient may possibly pass safely through the
illness; for though diphtheria has not the definite duration of some
other diseases, it does, nevertheless, wear itself out in time, and the
patient recovers if he can be kept alive long enough. Next, there-
fore, in importance to the immediate success of the operation, is the
after-management of the case, which resolves itself mainly into
three principal points—viz., the clearing away as far as possible of
all obstructions to respiration, the prevention of all causes of catar-
rhal irritation, and the liberal administration of the best kinds of
nourishment. To secure the first of these objects, not only must
the inner canula be carefully kept clear, being removed for that
purpose at least once in two hours, but any mucus or loose
flakes of membrane within sight of the orifice should be carefully
removed as soon as they are discovered, otherwise they will be drawn
in again by the act of inspiration. Any accumulation of mucus, or
any loose false membrane below the opening can of course only be
expelled by coughing, but their expulsion may sometimes be facili-
tated, when the patient's strength permits, if from time to time,
when he has taken as deep an inspiration as possible, the finger of
the attendant be momentarily placed on the mouth of the canula,
and then suddenly removed when the effort to cough has been ex-
cited. The supervention of catarrhal irritation is to be guarded
against by protecting the patient from inhaling either too cold, or,
on the other hand, too dry, warm air. It has been usual in the hos-
pital to endeavour to secure these objects by placing the patient's
bed near the fire, surrounding it closely with curtains and screens,
and at the same time moistening the air of the little chamber so
contrived, by directing into it a current of steam through a tube
attached to the spout of a large tea-kettle. Being, however, of
opinion that pure air and free ventilation are quite as indispensable
as warm and moist air, I have tried several modifications of this plan
with private patients, but, on the whole, incline to the plan, origi-
nally suggested by Trousseau, of covering the mouth of the canula
with a knitted woollen veil, or a wide piece of muslin, applied loosely
round the throat like a cravat, in such manner that the patient's
breath may warm and moisten it as he exhales, and that it may in
turn warm and moisten the air he inspires without impeding the
free renewal of air around him. Lastly, in a disease characterized
by such extreme depression, it is essential to give the patient an
adequate amount of support in the form of food and wine; bearing
in mind always that not the actual amount administered, but only
the amount which can be assimilated, will do the patient good. So

all-important do I consider the keeping up of the patient's strength by means of nourishment, that I never hesitate to abandon any medicine when I find that its administration prevents the taking of a sufficient quantity of food. For the same reason I can lay down no positive rules as to the kinds of food to be given; they should be not only nutritive and easily taken, but, as far as possible, acceptable to the patient. Very strong beef-tea, jelly, eggs and milk, with wine or brandy at frequent intervals, will generally be the best diet for some little time after the operation. If, a day or two later, liquids begin to regurgitate through the nostrils and to find their way through the canula, which I attribute to the accession of the secondary paralytic symptoms so common after diphtheria, then it is necessary to have recourse to soft or soaked food, which can be swallowed with greater facility than liquids, and with greater certainty of conveying the required nourishment."

Art. 17.—*On the Pathology and Treatment of Asiatic Cholera.*

By A. C. Macleod, M.D.

(*Lancet*, Oct. 7, 1865.)

During twenty years passed in India, Dr. Macleod has had repeated opportunities of observing cholera, and he has been led to the following conclusions :—

Firstly. That no sanitary precautions, in the present state of our knowledge, will avail to stay its onward course, which proceeds by mysterious, maybe immutable laws, surely, irresistibly ; nor to moderate its virulence in individual cases, the first few proving generally fatal, and subsequent seizures becoming gradually milder as the disease seems to exhaust itself.

Secondly. That sanitary measures tending to raise the standard of public health, and thereby to counteract a predisposition in individuals to the disease, will avail very much to limit its ravages, by reducing the total number attacked.

Thirdly. That a " rational " may take the place of an " empirical " treatment ; the latter term of course being taken in its legitimate, not an injurious sense.

In considering the treatment, it will be manifestly convenient to exclude such cases as have already passed into a moribund condition, as also those in which the sequelæ of the disease have supervened.

In this formidable malady the functions of the liver, kidneys, salivary glands, and (presumably) the pancreas are suddenly and absolutely arrested. So that were I asked to state, as succinctly as possible, in what cholera seems to consist, I should say, " in the total suppression of some secretions, and the more than proportionate excess of others." Impressed with this view of the pathology of the disease, I was led at an early stage of my experience to regard the

profuse discharge from the mucous membrane as indicating Nature's principle of cure, by eliminating from the system the *poison*—or by whatever other term we may designate the noxious condition—on the existence of which the disease depends. Acting upon this supposition, and with that belief still further strengthened by a consideration of the already fatally inert condition of the liver and kidneys, I very quickly abandoned the conventional treatment by opiates and astringents. If, I argued, this deadly torpor of the liver and kidneys be indeed the proximate cause of the mischief, the "*fons et origo mali*," perhaps the very essence of the disease itself, and if again these abundant evacuations be, as all analogy would lead us to infer, a desperate but curative operation of Nature, surely the very way to increase the existing evil on the one hand, and to paralyse these salutary efforts on the other, would be to prescribe such a drug as opium.

Discarding then, with all its class, a remedy so glaringly inappropriate, I had to find one that would, on the contrary, revive the suspended functions. The selection of calomel was obvious. None other could hold out such hope of specific and certain effect. Amidst innumerable vaunted remedies, an immense preponderance of testimony was already in its favour ; but universally its good effects had been counteracted, paralysed, rendered in fact almost impossible, by a conjunction with opium.

The following, then, were the indications of treatment I kept in view :—1st. To restore the hepatic and renal functions. 2nd. To assist—assuredly not to check—Nature in her exhausting, but necessary, process of elimination by the bowels.

For the fulfilment of the first indication I relied on calomel given in ten-grain doses, and repeated every half hour, or even every quarter, according to the intensity of the attack. I have also found, at a later stage, a large blister to the loins have a surprising effect in directly stimulating the kidneys to action.

The second indication—that of supporting Nature in her work of elimination—is to be fulfilled by diffusible stimulants, regulated by the state of the pulse ; draughts of cold water *ad libitum ;* hot-water bottles to the feet, and diligent friction of the stomach and extremities.

Whenever, therefore, I have been called to a case sufficiently early, I have invariably had recourse to the following measures :— Ten grains of calomel washed down with a stimulant draught are at once administered, and repeated as quickly and as often as may be requisite. It is surprising, by the way, considering the violent and continued retching, how little, if any, of the powder is brought up again. Hot-water bottles are placed at the feet, which themselves are wrapped in flannel. Three or four attendants are employed in assiduously rubbing the abdomen and extremities with cajeput oil. The almost instantaneous result obtained by this rubbing process, not only in relieving the agonizing cramps, but in rousing and sustaining the failing powers of life, is truly astonishing. There is no embrocation that I know comparable to it in allaying pain—I might almost say of any kind—for I am in the daily habit

of prescribing it in colic, chronic rheumatism, neuralgia, &c. It is rapidly absorbed, and manifests itself in the breath, the urine, and, as I conclude, in all the fluids. In the intervals of rubbing, the whole abdomen is covered with a sheet of spongio-piline sprinkled with the oil.

The insatiable thirst, affording another instructive and emphatic token of Nature's working and her wants, can in no way be so well met as by copious draughts of cool spring-water. Even when in great part rejected by vomiting, enough is absorbed to replace the waste by flux and to dilute the fast thickening blood.

The dawn of recovery is recognisable by the gradual subsidence of the vomiting and purging, and the rising of the pulse. The watery motions are after a time replaced by pretty consistent dejections of seemingly black bile. By transmitted light, however, these will be found of an intense but bright olive, subsequently passing through successive shades of green, till the familiar yellow tinge is attained. The restoration of the renal function follows, sometimes at a consi-derable interval, that of the hepatic. As far as my experience goes, it never precedes it. Nor until it is re-established can we regard the battle as won; it is therefore looked for with intense anxiety. As already stated, a blister to the loins is, under these circum-stances, a powerful adjuvant, and should be resorted to whenever this important issue is doubtful or delayed.

ART. 18.—*On the Use of Barm and Strychnine in Typhus.*

By Dr. HENRY KENNEDY, one of the Physicians to the Cork-street Hospital, Dublin.

(*Dublin Medical Press*, June 14, 1865.)

In April, 1864, Dr. Kennedy had an opportunity of putting to the test, in the treatment of true typhus, a remedy which he had had long in mind—namely, barm. He thus states the results of his observations:—

"It has appeared to me to be an agent of great value in the treat-ment of the fever which has prevailed of late in Dublin—a fever showing a great deterioration of the blood, numerous petechiæ, and all the other symptoms of typhus. It seems to me to act as an antiseptic, and any one who has observed its effects outwardly in the form of a poultice will, I think, be inclined to admit at least the possibility of its acting favourably when taken as a medicine. It is scarcely assuming too much to say it will correct morbid secre-tions, and so benefit the patient, and this it appears to me to do. From first to last I have been struck with one point, which has an important bearing on the subject—I mean the rapidity with which the disease seemed to go through its stages, and consequently the quick recovery of the patients. The spots, too, went through the same rapid course, and it was matter of observation to me to see

them, when on the wane, become a bright red, after having been the very darkest. To myself this appeared to be probably due to the effects of the barm, for I have not observed it when this agent was not used. On the point of the duration of the disease, I can only state my conviction that it was very short. An attempt has been made, by means of statistics, to arrive at the average duration of the patient's illness. Such a result cannot, I believe, be arrived at, as it is neither possible to say when the fever began or ended.

" The only appreciable effect, besides what has been stated, resulting from the use of the barm was a very slight looseness, of the very mildest character, usually once or twice in the twenty-four hours ; nor had I occasion to stop it on this account more than six times during the whole year. In numerous instances, too, I could not help thinking this soluble state of the bowels—for it could not be called purging—was markedly beneficial. This effect has been observed by others as well as myself. There is another point, too, worth noticing, and in which barm surpasses any other medicine I know. I mean the universal way in which it was taken by young and old. To my own taste it is nauseous, but it really seemed as if its bitterness were relished by fever patients, and certain it is I had never occasion to stop it in ten instances ; and when we consider that two and sometimes three ounces of fluid were required for a dose, the point is striking.

" But while I thus speak of the remedy, I do not wish to recommend it more than it is entitled, or as more than a help, but I believe a valuable one, in the treatment of typhus fever. When I had been using it some time I found there was a class of cases in which it did not cause its usual good effects, those where the circulating system was profoundly engaged, as shown by the very weak beat of the heart, or even its absence, and a corresponding weakness of the pulse at the wrist, or a state in which the artery could be felt, but no beat. In connexion with this subject Dr. Stokes has made some valuable observations on the sounds of the heart. Now in this class of cases the barm, as just stated, did not meet the emergency, and wine or other stimulant I found was not beneficial beyond a certain quantity, and so it struck me that possibly the potent agent, strychnine, might be tried. It had been long used in chronic affections, as for instance in cases of weak heart, being first recommended in such, I believe, by Professor Law ; and Dr. James Duncan had shown its value in certain cases of what might be called acute asthma ; and I myself brought before the Association a detail of several cases of very acute disease in which its use seemed to be followed by benefit. So that I had some grounds for prescribing it in the cases of fever where the object was to keep up or rouse the action of the heart, and with this intention now very generally order it. Half a drachm of the liquor of the British Pharmacopœia is put in eight ounces of camphor water, and one ounce of this given each three hours, mixed with an ounce or more of the barm. The latter, from its thickness, requires to be thinned, and it is better to do this at the time of giving it.

"The question will now be asked,—What then have been the results of this treatment? What the mortality? For the answer to these questions I am indebted to my friend, Dr. Grimshaw, who tabulated, and I am sure with much labour, the cases which passed through the wards from the 1st of May, 1864, to the end of December, 1864; that is, eight months, during which just 1000 cases came under my care. The mortality on the entire number was under five per cent. But if the spotted cases alone be taken, amounting to 300, the mortality was under nine per cent.; and when I consider that no deaths, from whatever cause, have been excluded, and the very serious type of the fever which prevailed, I cannot but think the mortality very low; for it need scarcely be observed, that many cases were admitted only to die, whilst some laboured under fatal pneumonia, and did not live beyond the first or second day. I repeat, then, none of these cases have been excluded, else it is fair to infer the mortality might have been reduced to seven per cent. But I am quite satisfied to have it under nine.

"Before concluding this paper, some considerations arise which I believe to be important and in direct connexion with the more immediate subject brought under your notice. Thus while barm has been recommended it has been only as an auxiliary to the other treatment of fever. The disease is of too complicated a nature to be left to the effects of any one agent, no matter how valuable; and barm would not meet all the requirements of the case. It will not keep the pulse going, and hence wine cannot be dispensed with. But it is a question, and a most important one, whether with its use, less wine would answer. Its chief action I take to be antiseptic; but in addition the bitter principle of the hop is not to be overlooked, nor the traces of the phosphates. Hence, if we except the stimulant action of the alcohol in wine, we have in barm an agent which will go, at least, some way to supply the place of the other compounds of the wine. The result of my own observation is that when barm is used less wine is required; and, as some proof of this, I may state that, though the type of fever of the past year has been very grave, the quantity of wine given has, individually, been small. In not more than four cases were twenty ounces given in the twenty-four hours. In about four times that number sixteen ounces were used, whilst in by far the greater number the quantity ranged from six to twelve ounces; a large number even of the spotted cases got no wine at all. Many of these were children; but when, even in the latter, it seemed needed, I never hesitated to order it, and with results, I could not doubt, most markedly beneficial. I have said elsewhere, and I repeat, that in no class of cases is wine given with a happier effect than to children."

Art. 19.—*The Open Air Treatment of Fever.*

By Dr. Henry MacCormac, Belfast.

(*Dublin Medical Press*, June 14, 1865.)

Dr. MacCormac discusses the necessity of a complete interchange of the air of rooms occupied by the sick from fever, with the outer atmosphere.

The mortality from fever in public hospitals and private dwellings, up to this day, has been and still is very great. There is first the mortality, as induced and aggravated by unrenewed air, forcing patients to respire their own poisonous excretions. Next, there is the superadded mortality caused by the attendants on the sick being constrained to breathe infection. Now, if there be any facts in connexion with the treatment of disease in general and fever in particular, that are established beyond the possibility of direct cavil or contradiction, it is—

I. That fever patients, *cæteris paribus*, recover oftenest and best, when they breathe air no portion of which has been breathed before, and no portion of which is fouled otherwise by the emanations entailed by disease and attention to natural wants.

II. Next, that if strict attention be paid so as to insure the literal performance of the preceding requirements, the fever poison will be so dissipated and diluted that it will not have power to engraft itself on healthy organisms, in other words, that it will not communicate the disease.

Well, what do we find, in fact? that the mortality from fever is everywhere very considerable, and that this mortality has been greatly aggravated by infection, this infection further accruing from those about the sick being forced to respire the undiluted or the insufficiently diluted poison of the disease. The mortality connected with the London Fever Hospital, some of it among the officers of the institution, has been recently very great. In Greenock five physicians of the place have died in quick succession, while a sixth who came to aid has shared the same fate. In Edinburgh, in Dublin, in Glasgow, in Belfast, the tale is still the same. Only yesterday I was told of a medical man, a valued life, carried off owing to the infection incurred by attendance on fever. The deaths among clergymen, doctors, and others, owing to infection, alone, since the beginning of this century, constitutes a harrowing and lamentable list. Now, the mortality in fever would be very greatly reduced by strict cleanliness and perfectly renewed air, while in the next place with strict ventilation and cleanliness absolute, there would be no infection whatever. I do not speak merely at second hand. For the last twenty or thirty years I have had as much success in the treatment of fever as the nature of the malady, coupled with the careful observance of the precautions I advocate, would warrant. And never have I, in a single instance, witnessed, the circumstances being as I have stated, the communication, owing

to infection, of the disease. There is no other known way of insuring the needful renewal, the complete interchange of the inner with the outer atmosphere, except by taking out the windows, or if sufficiently large, by pulling them half way down. I shall not stickle for a foot or an inch, more or less, of aperture, so the result I aim at—namely, the complete restoration of the atmosphere, the substitution of what has been fouled by that which is unfouled, in short, making the inner and outer atmosphere, in respect of purity and unbreathedness, one and the same—be thoroughly realized. The senses must be unable to detect any impurity, the lime or potash test must declare the absence of carbonic acid gas, the minute proportion of course excepted which obtains in the natural atmosphere. The observance of the precautions here urged would lead, assuredly, to such a diminution of disease, in respect of fever and communicable febrile diseases, as the world has not hitherto witnessed.

Art. 20.—*On the Treatment of Zymotic Diseases by the Alkaline Sulphites.*

By Dr. De Ricci.

About five years ago Professor Giovanni Polli, of Milan, directed attention to the peculiar effect of alkaline and earthy sulphites in staying all forms of catalytic action, not only in dead organic matter, but also in living animals. He suggested also their probable utility in the treatment of zymotic diseases. Dr. De Ricci early took much interest in Professor Polli's experiments and views, and he urges a larger use of the alkaline sulphites, and particularly the bisulphite of soda, in the class of diseases referred to.

" I think," he says, " I can safely assert, in the first place, that I have proved this remedy, the bisulphite of soda, to be perfectly *harmless*. It is not—like strychnine, arsenic, iodine, opium, or mercury—an instrument with double edge, cutting equally for good or for evil, according to the skill or the incapacity of the physician. It is perfectly harmless, for I have taken it myself, in *larger doses* than are required for therapeutic purposes, with perfect impunity. The physician, therefore, who wishes to try it, can do so freely without fear of risk. Physiology leads to believe that all zymotic diseases depend on a fermenting or catalytic principle in the blood. Chemistry teaches us that in the presence of sulphurous acid and the sulphites no catalytic action can take place, and practical experience confirms the teachings of science, by showing us palpably that zymotic diseases, even in their most virulent forms, become completely neutralized by this remedy. Who, then, shall not try it, and bring it to the only test which can decide of its value— clinical experience? I stand at present nearly, if not entirely, alone in these countries as an advocate of this remedy; but if I am

not mistaken, the discovery of the use of the alkaline sulphites in the treatment of zymotic diseases will one day rank with the greatest discoveries in medicine."

Art. 21.—*On Cerebro-Spinal Meningitis in Portugal.*

By George Gaskoin, M.R.C.S.

(*Medical Times and Gazette*, June 17, 1865.)

The following description of cerebro-spinal meningitis as observed in Portugal during the years 1861-62, is an interesting contribution to historico-geographical pathology : —

Beginning in the hilly country on the right bank of the Tagus, towards Spain, this epidemic extended its ravages somewhat capriciously, with much violence, to the plains of the south, and even Lisbon and Oporto were not exempt.

Contrary to what occurred in the Strasburg epidemic of the years 1840-41, as described by Grisolle, the civil population in Portugal were affected to a greater extent than the military, and, among them, those who were in low circumstances furnished the greatest number of victims. Children were attacked in preference to adults, the occurrence of the disorder being rare in a person over thirty years of age. It began first in the villages near Monforte. The commissions which reported on the disease at first declared it to be an ataxic adynamic fever other than typhus, but soon they recognised its homogeneity with the French epidemics. They found no spur that year in the rye, nor any cause in the seasons, but attributed the *materies morbi* to the dung-heaps and farmyard stuff which were abundant in the vicinity, and gave more weight to this element than to the inferior condition of the inhabitants. The disease soon invaded the town and barracks of Castello Branco, situated at about eight miles' distance from the spot first attacked. One fact to which I would wish to draw attention is, that infantry soldiers were with great rarity affected, but the cavalry suffered a good deal, and the patients were chiefly recruits—that is, soldiers new in the service. In the minute and excellent reports which lie before me from the hands of the medical officers I see frequently repeated at 21 " sanguineous temperament," with varied result. But, how often fatal? The identity of the symptoms throughout shows the terrible eon of the complaint, and cases of cerebritis, meningitis, and typhoid fever are brought forward for comparison, and serve equally for contrast on the same page.

The series of acute symptoms, as observed in these cases in Portugal, may be thus described:—A well-marked chill, which varies from a strong rigor to mere coldness of the extremities ; vomiting of food, with bilious matter often green ; wandering pains in the limbs ; only occasionally high fever ; supra-orbital pain, shooting, it may be, with greater force into one eye ; the organs of vision injected with blood, and lacrymation profuse ; eyes shaded by the hand ; cephalalgia of an aggravated description, creating anguish,

expressed by screams ; pains driving with torture down the back of the stiffening neck ; the pain in the head aggravated by touch or pressure ; an anxious expression of the face, which is sometimes flushed, but at others pale ; drooping eyelids ; fixed and fearful look ; respiration irregular, imperfect, or frequent ; voice weak ; restless action ; convulsions, with difficulty restrained by many hands ; muscular pain, experienced alike in contraction and exten-sion, or perchance early prostration, with total speechlessness and some degree of coma. In other cases—insomnia ; command of ideas by day, but at night delirium, with great loquacity, or less often raging mania ; thirst of intense kind ; difficult deglutition. These symptoms were accompanied variously by a slow, a quick, full, weak, or normal pulse, a tongue generally moist and white ; and if dry and brown, chiefly in the later stage ; heat of surface below or above par, or normal ; perspiration copious, and often viscid ; urination and defecation difficult ; urine limpid and without sediment of any kind ; rachialgia ; pupils, even early in the disorder, equally or unequally dilated ; pressure on the head causing the sensation of an electric shock, or producing spastic actions in the limbs ; dorsal decubitus ; lethargy ; filiform pulse ; cold sweats ; trismus ; strabismus ; jerking movements of the extremities ; meteor-ism in the bowels ; incontinence of urine ; aggravated opisthotonos, followed by deeper coma ; stertor, preceding death.

On inspection the meninges are found strongly injected, occa-sionally displaying patches of ecchymosis of some size. Substance of the brain with abundant bloody puncta ; lymph and pus with lact-escent or sanguinolent fluid may be expected to be found in the contents of the head and spine.

But the series of milder cases are not less interesting ; drawing out to the period of a month to forty days, they often display in a marked manner, with more or less regularity, the features of acces-sion and intermittence, which characterise in their decline fevers called remittent, which we are accustomed to distinguish from typhus in a definite manner, and which, indeed, we refer to a dif-ferent class of causes ; and here I may very well observe that humidity seems to enter as an element in epidemics of cerebro-spinal meningitis, and we cannot overlook the fact of its occurring in situations where the dung of animals mixed with vegetable material is collected in abundance : some special matter is necessary, no doubt, as a spark to light the train, if so poor an illustration may serve, but what that special remote cause is entirely baffles con-jecture. The disease seems to affect the spring season, on the very verge of winter, and in the middle of March declines, appearing with greatly diminished frequency in the summer months. One feature I shall not omit to mention, which is, that in the cases which had a favourable termination, something of the opisthotonos—that is to say, a considerable hardness and contraction at the back of the neck—remained as the most lasting, the most permanent, and, in fact, during convalescence the only symptom. In rare cases also one pupil remained somewhat dilated. Here, then, we find a uniform basis comprised of scarcely varying symptoms, constituting a special

disease, and gathering in its train attendant phenomena of a secondary character, less significant perhaps, but still commanding our attention. Such are the frequent occurrence of a considerable amount of epistaxis and a tendency to pulmonary effusion. The frequent occurrence of herpes labialis and the presence of those lumbrici to which so much importance was given in the attack of a similar epidemic on the cavalry at Versailles—a symptom which was more rare in Portugal, and which seemed to act merely as a predisposing cause, no less than the nostalgia or moral unhappiness which affects the youthful soldier.

Treatment by general and topical bleeding was fully tried ; the same with quinine ; both failed to give the relief expected by their advocates : as regards the last, it is not a matter of surprise, considering the morbid lesion which occurs. Mercury in the hands of the French had so wholly failed that it seems to have been used on this occasion but little. Ice was applied without marked benefit. The blisters which are so freely employed in treating fevers in Portugal are declared to have aggravated the symptoms. A more favourable opinion is given of the method of M. Chaufard, who recommends opium in occasional doses of three to four decigrammes. One of the faculty used acetate of morphine in doses of half a grain night and morning ; he says of it that all the patients submitted to its action, experienced alleviation from the very first, and on continuing it a complete cure of the paroxysms occurred, tending towards a regular convalescence, in spite of the opisthotonos, which was some time before it gave way.

(c) CONCERNING CHRONIC DISEASES.

ART. 22.—*Peculiar Affection of the Mammary Glands in Different Forms of Constitutional Syphilis.*

By Dr. C. AMBROSOLI.

(*Gaz. Lomb.* 36, 1864 ; *Schmidt's Jahrbücher*, vol. 125.)

CASE 1.—L. M——, a smith, had an indurated ulcer on the glans penis in March, 1863, complicated with indolent adenitis in the left inguinal region. The ulcer healed by simple cauterization, and, in the following April, a papular syphlide appeared on the chest, abdomen, and thighs. The indolent buboes remained, and the scar on the glans was indurated. The cervical glands were enlarged and indurated, and there was extensive ulceration of the velum palati. The administration of Ricord's pills removed these symptoms in two months. A month later the ulcer of the palate reappeared, and there were small copper-coloured spots on the site of the former papules. At the same time, the nipples were swollen each to a round, hard tumour, that had existed for fourteen days, was slightly tender on pressure, painful from time to time, especially at night, and slowly enlarging. Further examination discovered general enlargement of the mammary glands, which were somewhat indurated but moveable. The axillary glands were unaffected. Under the use of iodide of potassium,

of which the patient took 170 grammes in one month, the swellings gradually disappeared, and all other symptoms of syphilis were eventually removed.

Case 2.—L. R——, a linen-weaver, nineteen years old, never previously syphilised, was seen on the 20th of May, 1863, with a primary ulcer on the right nympha, and indolent glandular swellings in the inguinal region. After simple cauterization she was discharged cured in fourteen days, and on the 26th of June was readmitted with a confluent syphilitic ecthyma, attended by a vesicular eruption on the backs of the hands and feet. After two months of mercurial treatment the eruption dried up and underwent desquamation ; but the patient still complained of pains in the forehead and lower limbs, which underwent nightly exacerbations, and destroyed her sleep. She also mentioned that she had for some days observed a swelling of her right breast, which was found to be about one-third larger than the left. The enlargement was uniform, smooth, somewhat indurated, slightly painful on pressure ; the skin covering it of natural colour ; the temperature not increased ; the nipple unchanged, the axillary glands somewhat swollen and tender. Treatment with iodide of potassium was commenced. After a few days, similar symptoms appeared in the left breast also, but in a less degree. In the course of three months the pains in the bones gradually disappeared, the breasts returned to their normal size, and lost their hardness ; and after the patient had taken 200 grammes of the iodide no syphilitic symptoms were discoverable, and she was able to return to her work.

Case 3.—L. G——, twenty-four years old, servant girl, was admitted into the Syphilitic Hospital on the 27th of January, 1864. She denied having suffered from syphilis, but had a papulo-pustular eruption and superficial ulcerations of the mucous membrane of the commissure between the labia. The eruption was confluent, and there were indolent buboes in the groin, but no cicatrix was found. The treatment consisted of Ricord's pills and simple baths. After two months the pustules dried up, the papules desquamated and partly disappeared. In three months iritis appeared in the right eye, but, under suitable treatment, left no ill effects. Some weeks afterwards the patient complained of pain and weight of the right breast, which was swollen, somewhat indurated, smooth, and painful on pressure. The skin and nipple were unchanged ; but there was a slight swelling in the right axilla. In forty-seven days the patient took 180 grammes of iodide of potassium, and was completely relieved of all her symptoms.

The affection described by the author is, therefore, a more or less general hypertrophy of the mammary gland, with uniform induration of its tissue, attacking one or both breasts in syphilitic persons, occurring at the decline of the secondary and at the commencement of the tertiary symptoms, and disappearing under proper treatment, without ill consequences. The disease is easily distinguished from other mammary affections, such as schirrus, carcinoma, traumatic mastitis, or the mastitis of lactation. It is analogous to syphilitic orchitis, which also commences with increased weight and volume of the gland, and which has been considered by some as a tertiary affection, and by others as making a transition from the secondary to the tertiary stage. The syphilitic testicle, like the mamma, is uniformly enlarged and hardened, is generally smooth, is not very painful, and yields easily to a treatment by iodine and mercury, or by mercury alone. The syphilitic iritis, which in the third case occurred together with the inflammation of the breast, is also a transitional form of dis-

ease, between the secondary and the tertiary; and the author believes that the affection of the mammary glands should be regarded in the same light.

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Art. 23.—*On a Case of Morbus Addisonii.*

By Dr. John Hughes, Physician to the Mater Misericordiæ Hospital, Dublin.

The following is the history (somewhat abbreviated) of a case of Morbus Addisonii, observed by Dr. Hughes :—

" I admitted into the Mater Misericordiæ Hospital, on the 20th of February, 1865, Pat. Garry, a native and resident of the county Kildare. He was a married man, had three children, was aged 45, by occupation a herdsman. I asked him what ailed him, and he said he could not tell what came over him, only that he felt the greatest weakness; could not use any food, and had pains in his arms, in his back, and extending round his waist; his knees also were stiff and weak, so that when he knelt he could scarcely rise again— yet he was thankful there was no sickness upon him, only he was weak as a child, and not able to do anything. Together with those symptoms he presented the most remarkable discoloration of the skin. Being greatly interested in the case, I used every means in my power to obtain the best history of it I could from himself, his wife, his master, and his doctor in the country. It appeared that he never suffered from any disease or accident which confined him to his bed or to the house, but for the last eight or ten years he complained of a bad stomach : its contents were frequently unduly acid, and he had occasional pyrosis, but he never vomited any blood or coloured fluid, and when the attack was over he felt no inconvenience. He was always temperate and regular in his conduct; he lived very comfortably for one in his station of life; was well clothed, well fed, and his diet was sufficiently varied, being accustomed to use fresh animal food two or three times in each week, and his occupation did not expose him to any influences detrimental to health; in fact, the most searching inquiries failed to find any sufficient cause for the gastric disturbance. His family history afforded no evidence of any hereditary taint; his father died of fever, under the age of thirty; his mother he believed to be still living in America, as also three brothers, and he has one sister at home. He had never heard of any delicacy in his family. However, the condition of his stomach troubled him for a long period; and as time wore on the attacks became more severe and more frequent. This was especially the case within the last two or three years, and for the four or five months preceding last November he could scarcely retain any food on his stomach, no matter what kind it was, and he lost condition, being *one stone* short of his ordinary weight, contemporaneously with this aggravation of his gastric disturbances commencing about last May. *The colour of his skin began to change;* every one re-

marked it. His friends told him he was getting jaundice; and his master told me he too observed it, but attributed the change to open air exposure. The patient himself did not mind the alteration of his colour; he only felt a gradually increasing weakness and loss of appetite; he consulted a physician of high standing in his own district, to whom I wrote, and he very kindly answered me, saying, 'he was sorry he could give me little information about Pat. Garry, as he had not taken notes of his case, but he recollected that he consulted him in October last, and that he looked upon his case as one of incipient cancer of the stomach combined with disease of the liver.' In December last he came to Dublin for advice, and got some powders to take, and a croton oil liniment to be applied to the epigastric region. After the eruption produced by its application appeared, the vomiting ceased, but his appetite also completely ceased with it, and so also did the weakness increase. This is all I could make out of his history or antecedents bearing upon the case. On admission to the hospital he was carefully and repeatedly examined with a view of discovering some sign or symptom of organic disease to account for his extreme debility and prostration, but in vain. The lungs yielded no morbid sound either on percussion or auscultation; the heart's action was regular, and its sounds normal but feeble, and the pulsation not to be felt in the præcordial region; the pulse, too, was excessively weak and compressible, reckoning eighty in the minute. Below the diaphragm the abdomen was rather retracted; there was slight epigastric tenderness on pressure, but no tumour to be felt; the pulsation of the abdominal aorta could be readily felt in the umbilical region, and he himself complained of its throbbing, more especially when in the recumbent position, and said it kept him awake at night; the kidneys acted well; the urine was normal in quantity and quality, it contained no albumen or other deposit, its specific gravity was over 1026, and gave an acid reaction; the bowels were regular, and the tongue clean; he complained of a pain in the abdomen, and described it as extending from the lumbar vertebræ and encircling the abdomen, very severe, but intermittent: it was neither aggravated nor relieved by food, nor was it increased or mitigated by anything he knew of; he suffered also from pains in the arms, and both in the spine as well as the arms pressure was disagreeable, if not painful. There were no cerebral symptoms, no headache, or delirium, and no paralysis, but there was a remarkable depression of spirits, coupled with a nervous anxiety about himself. In fact, our examination was negative in its results, for there was nothing established by it to account for the great weakness which existed; this latter symptom was so extreme that our patient could not walk across an ordinary room without the greatest breathlessness and distress, and he sometimes felt giddy on suddenly getting out of bed or assuming the erect position. The discoloration of the skin, as I have already observed, was very peculiar, and led me at first to make a diagnosis. My colleague, Dr. Hayden, also recognised the resemblance between this patient's and those which presented in a case he has detailed in his essay on symptoms 'Supra-Renal Melasma,' published in number lxxvii. of the *Quarterly Journal*, and the pathological changes in which he exhibited at

a meeting of the Pathological Society on the 10th of December last.*
My patient's complexion had been always fair and clear, and the hair
brown ; now the face, neck, and hands were of a smoky-brown or
bronze colour, while the sclerotic was pearly white and the finger
nails were also whitish, but the pigmentation was not limited to those
parts ; it was well marked in the axillæ ; around the nipple ; in the
epigastric region where the croton oil liniment was applied ; in the
inguinal regions, especially the left, where the patient himself said
it commenced—on the scrotum and over the knees ; there were also
in parts of the axillæ and on the arms a few scattered spots like those
of purpura, but much darker, almost black. The skin, together
with being universally discoloured, was dry (the patient said he never
did perspire), but not shrivelled; there was a well-marked livid bluish
line along the free margin of the gums, very like that produced by
the poison of lead.

" Dr. Hayden kindly assisted me in making a microscopic exami-
nation of the blood ; and although it contained white corpuscles,
yet they were not in any remarkable excess—from five to six in
each field, while in other recorded cases they amounted to forty or
fifty.

" From Monday, the day of his admission into hospital, till
Friday, there was no marked change in my patient's symptoms ;
indeed, he sometimes said he felt better ; he got up every day,
dressed himself, and took more nourishment than when at home.
His wife came from the country to visit him on Thursday, and she
thought him improved, and found him more cheerful than usual.
He took six ounces of wine daily, and some aromatic iron mixture.
On Friday night, however, after getting into bed, he had a rigor
which lasted about half an hour, and was followed by what he called
a most distressing heat (but no perspiration), and he continued so
till two o'clock in the morning, when he fell asleep. At my visit on
Saturday morning he told me what occurred to him, and said he had
similar attacks of late, but this was the first since he came to hos-
pital; he said, also, he took some bread and tea for his breakfast *in
bed*, which he immediately threw up, and this was the first time he
vomited since he came under my care, or for some weeks before. He
got up, however, but was scarcely dressed when the rigor again
seized him, and he was obliged to lie down. The hour of my visit
on Saturday was eleven o'clock, when I carefully examined him. I
found no change except some degree of febrile reaction after
the rigor; his skin was hot, his pulse quick, 110, and he was
thirsty ; his bowels were moved early, and he passed urine ; there
was no pain, no tenderness, no sign of any thoracic or abdominal
inflammation, and his intellect was perfectly clear ; there was nothing
to lead to the belief that there was immediate danger. However,
he began to sink that evening, and during the entire night, and at
six o'clock on Sunday morning I was sent for to see him. I went
to the hospital without delay, and found him lying in bed, on his
back, unconscious, not able to swallow, nor capable of being roused
from what might be called a quiet sleep ; I could barely feel the

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* See the Half-Yearly Abstract, v l. xli. p. 76.

pulse; the breathing was regular; there was no stertor, no coma, no convulsion, and his features were unchanged. He died at two o'clock.

" As my patient's sojourn in the hospital was brief, and his disposition so fearful and nervous, few unconnected with the institution saw him, and those few medical friends who visited him with me were struck with the pigmentation of the skin.

" The post-mortem examination, which was made by the pupils of the hospital, in my presence, and in presence of my colleague, Dr. Hayden, twenty-four hours after death, completed the. case. The body was rigid, somewhat reduced, but not emaciated; the colour still remained. On laying open the thoracic and abdominal cavities there was a deposit of yellow fat in the latter at least half an inch thick; the viscera I now produce are perfectly normal; the stomach which had been so irritable and so weak of function during life, is pale, no doubt, and anæmic, but without any trace of organic disease or inflammatory action; the spleen is normal in size and structure; the kidneys are perfectly healthy; the heart, which beat so feebly, is healthy in structure, and its valvular apparatus perfect, nothing to remark except a more than ordinary deposition of fat upon its external surface; the lungs, too, I had almost said, are healthy, for those scattered miliary tubercles on the surface just beneath the pleural membrane (but not in the substance of the lung), whatever might be their effect in process of time, could not have seriously interfered with their function up to the present, neither did they reveal their existence by physical signs nor by constitutional disturbance. In vain do we search for pathological changes in the principal organs; but in examining the supra-renal bodies, here alone do we find structural alterations in the greatest degree, increase of size, and deposition of a firm opaque lardaceous-looking substance, of a yellowish-white colour, something like the section of a cut parsnip. The *left* capsule is much larger than the right, as if it was in a more advanced stage of disease, but both affected by the same deposit, differing only in amount; through both very large nerves run, much larger than in the normal state. Dr. Hayden has kindly obliged me by making a careful examination of this deposit under the microscope, and also of a portion of the skin which had been removed for the purpose; the following is his memorandum:

" ' The cheesy-looking substance occupying the centre of the left supra-renal capsule, and deposited in the form of nodules through the right, is found, on microscopic examination, to consist of imperfect cells of different sizes, nuclei and fat molecules. There is no trace whatever of fibrous tissue, fibro-plastic material, or, indeed, of inflammatory products in any form—the substance is manifestly a strumous deposit. A section of the coloured skin made perpendicular to the surface with a double-edged knife, exhibits an abundant deposit of dark pigment, in the usual situation—viz., in the deepest layers of the cuticle.'

" The head was not examined; but as we had no cerebral symptoms during life, it is not likely we should find any material structural changes after death."

XLII.   .   4

SECT. II.—SPECIAL QUESTIONS IN MEDICINE.

(A) CONCERNING THE NERVOUS SYSTEM.

ART. 24.—*On a Peculiar Form of Spinal Paralysis.*

By Dr. RADCLIFFE, Physician to the Westminster Hospital, and to the National Hospital for Paralysis and Epilepsy.

(*Lancet*, May 27, 1865.)

In a clinical commentary on the diagnosis and treatment of paralysis, Dr. Radcliffe describes a peculiar form of the disease which had come under his observation.

In this form of paralysis voluntary movement and the muscular sense are lost, and cutaneous sensibility—that is, the sensibility to touch, pain, tickling, and differences of temperature—is increased on one side of the body, and, contrariwise, voluntary movement and the muscular sense are preserved, and cutaneous sensibility is lost, on the other side of the body. Moreover, there is more vascularity and greater warmth on the side in which voluntary movement is lost and cutaneous sensibility preserved than on the side in which voluntary movement is preserved and cutaneous sensibility lost. The parts which are thus altered in motility, in sensibility, in vascularity, and in warmth, are *below* the seat of injury in the cord, and the head escapes, except in cases where the seat of injury in the cord is high up in the cervical region, and then what happens, in addition, is, that there is more vascularity and greater warmth on that side of the face and head which belongs to the side of the body in which the vascularity and warmth are increased, and that the opening of the eyelids is smaller and the pupil more contracted on this side than on the other.

Dr. Brown-Séquard has shown that all these symptoms may be produced artificially by cutting entirely across the lateral half of the spinal cord—by cutting across, that is to say, the posterior column, the lateral column, the anterior column, and the grey matter of one side of the spinal cord; and he has also enabled us to see why it must be so.

In the first place, there is good reason to believe that the nerves which minister to voluntary movement on one side of the body are collected together in the *same* side of the spinal cord, and that these nerves decussate with those of the opposite side of the body, not in the spinal cord itself, but at the anterior pyramids; and also that the nerves of cutaneous sensibility belonging to one side of the body decussate with those of the opposite side of the body, at or near their point of entrance into the cord, and that after decussation they are collected together in the *opposite* side of the cord: and hence it is possible to explain how it is that the effect of cutting entirely across one lateral half of the spinal cord is to destroy voluntary movement and to leave cutaneous sensibility on the same side of

the body, and, contrariwise, to destroy cutaneous sensibility and to leave voluntary movement on the other side of the body. A simple diagram will make all this easily intelligible. Viewed generally,
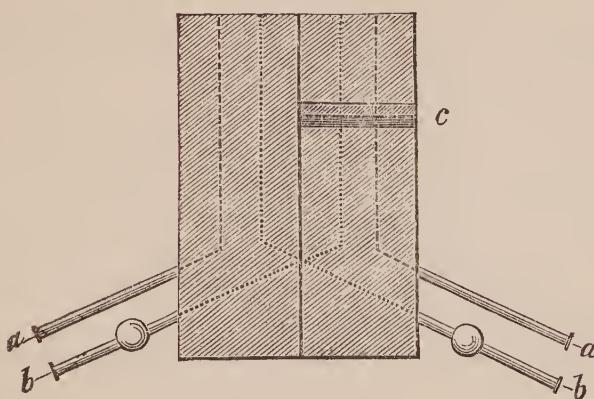
this diagram is intended to represent a segment of spinal cord with its pair of mixed nerves. Viewed in detail, *a* is the motor nerve, and the dotted line in connexion with it the continuation of this nerve in the substance of the spinal cord; *b* is the nerve of cutaneous sensibility (the enlargement upon it being intended for the ganglion upon the posterior root), and the dotted line in connexion with it the course taken by this nerve in the cord; and, lastly, the thick mark *c* is an injury which has divided completely one lateral half of the spinal cord. On looking at this diagram for a moment, it will be seen that the effect of the injury (*c*) will be this—that voluntary movement will be lost and cutaneous sensibility preserved on the same side of the body, and that cutaneous sensibility will be lost and voluntary movement preserved on the opposite side: and this is what has to be understood in the first place.

In the second place, there is good reason to believe that the nerves of " muscular sense" follow the same course as the nerves concerned in voluntary movement, and that on this account the muscular sense is preserved on the side where voluntary movement is preserved, and lost on the side where voluntary movement is lost.

In the third place, there is good reason to believe that the nerves of the vessels—the vaso-motor nerves—follow the same course as the ordinary motor nerves; and that, for this reason, the vaso-motor nerves are paralysed on the side where the ordinary motor nerves are paralysed, and *vice versâ*. And because there is reason to come to this conclusion, it is easy to go further and see how it is that this paralysis of the vaso-motor nerves will allow the paralysed vessels to yield and receive more blood; and that in this way the increased vascularity, the increased warmth, and the increased sensibility of the side on which voluntary movement is lost may be all accounted for as the result of the additional blood so received into the vessels. Moreover, it is found that the nerves of the vessels of the side of the face and head are paralysed, not only by dividing the chain of sympathetic ganglia in the neck, but also by injuring

the side of the spinal cord in the cervical region ; and hence it is possible to account for increased vascularity, warmth, and sensibility, and for diminished size in the opening of the eyelid and in the pupil on the corresponding side of the face and head, when the injury to the lateral half of the spinal cord is high up in the neck ; for this paralysis of the vaso-motor nerves will lead to the admission of more blood into the vessels, and this admission will account for all the changes which have been mentioned.

In a word, the elucidation as well as the discovery of the strange form of paralysis exemplified more or less clearly in the two cases which are about to be related, is due to Dr. Brown-Séquard.

After what has been said, it only remains to give the notes of two cases which have come under Dr. Radcliffe's observation, and to refer to the writings of Dr. Brown-Séquard for other cases of the kind, and for all further information.

CASE 1.— William W——, aged forty, steward of a yacht belonging to Lord Dufferin, unmarried, was admitted into Westminster Hospital, Burdett ward, under Dr. Radcliffe, on the 16th February, 1865.

Present condition.—W. is a well-built, muscular man, somewhat under the average size and weight. He is now in bed, and he says that he is quite powerless in his legs. The two legs are firm and muscular, and the left leg is somewhat warmer than the right. The left leg is completely paralysed as to voluntary movement, and very slight reflex movements in the toes only are produced by tickling the sole ; the right leg, on the contrary, can be easily lifted up from the bed, and moved in any direction, and marked reflex movements extending to the whole limb result from tickling the sole. The voluntary movements in the right leg are much weaker than they ought to be ; but they are sufficiently strong to require a considerable degree of force to conquer them. In the left leg the patient can easily tell whether the skin is touched by one, two, or three fingers, even when the fingers are only separated by a very small interval ; in the right leg the sense of touch, so judged, is absent. In the left leg a slight pinch or prick gives rise to sharp pain ; in the right leg the roughest pricking or pinching produces no pain whatever. In the left leg a moderate degree of heat or cold, applied by means of sponges soaked in water of different temperatures, produces a disagreeable feeling of heat or cold altogether out of proportion to the actual temperature ; in the right leg the difference can scarcely be felt between a temperature little short of the boiling-point of water on the one hand, and of the freezing point on the other hand. In the left leg tickling provokes an almost insupportable feeling of irritation ; in the right leg it causes no feeling whatever. In the left leg, then, the sensibility to touch, pain, tickling, and differences of temperature is exaggerated ; in the left leg such sensibility is almost annihilated. On the other hand, muscular sensibility, as tested by deep pressure in the ordinary way, appears to be absent in the *left* leg, and present in the *right* leg ; in other words, the muscular sense is present in the leg in which voluntary movement is present, and absent in the leg in which voluntary movement is absent—the very opposite of what has been seen to be the case in respect of cutaneous sensibility. In the two legs, indeed, the differences are as indicated in the table (p. 53).

On further inquiry, it appears that there is some degree of pain in the lumbar region of the spinal cord, and a sense of horizontal constriction midway between the umbilicus and the pubes, that all command over the bladder and rectum is lost, and that there has been no priapism or sexual feeling since the commencement of the illness.

	Left Leg.	Right Leg.
Voluntary movement............	Nil.	Impaired only.
Reflex movement	Almost nil.	Increased.
Sense of touch.....................	Increased.	Nil.
,, pain	,,	,,
,, tickling	,,	,,
,, temperature	,,	,,
Muscular sense	Almost nil.	Natural.
Warmth of skin ....:....	Increased.	,,

In other respects there are no signs of disease. The appetite is good ; the pulse is of fair strength ; sleep is sound and refreshing ; and the spirits are not at all despondent.

Previous history.—The present illness set in suddenly a fortnight ago, with aching in the loins, and with sharp pain in the calf of the left leg. The next day there was a feeling of circular constriction round the lower part of the abdomen, and the pain in the left leg had spread from the calf to the whole limb. Then both legs became very weak, especially the left leg. Two or three days later standing had become impossible, and the patient was obliged to take to his bed. At this time, also, the right leg had lost its power of feeling, and it was necessary to pass a catheter to empty the bladder, but the pain had come to an end, or nearly so.

Exposure to cold is supposed to have been the exciting cause, and it is not improbable that a predisposing cause may have been excess in sexual indulgence. The previous health seems to have been unusually good in all respects, and the habits temperate, at least so far as eating and drinking are concerned. And there appears to be no flaw in the family history.

Treatment.—Full diet, with porter ; hypophosphite of soda in ten-grain doses, and cod-liver oil in two fluid-drachm doses, three times a day ; a blister along the lumbar portion of the spine ; catheterism ; simple enemas.

March 6th.—Some degree of redness, swelling, and tenderness at the lower part of the sacrum. The urine is somewhat ropy, and the sleep frequently disturbed by a wish to pass it.

18th.—More reflex movement in the left leg, but not a trace of voluntary movement ; less reflex movement in right leg, and some faint degree of cutaneous sensibility in its four different forms. No marked difference in the temperature of the two legs.

28th.—The left leg can now be moved considerably by the will, and the cutaneous sensibility in the right leg is greatly increased since the last report. The legs to be exercised by passive movements, and the dose of hypophosphite of soda to be doubled.

April 6th.—Much better in all respects. Ordered to get up and exercise himself by trying to stand and walk.

15th.—The patient can now hobble up and down the ward by the help of two sticks, and there is now little difference between the two legs as to the power of moving and feeling.

26th.—The power of walking is much improved, and it is even possible to stand for a moment on either leg without the help of a stick. The sensibility of the two legs is now natural, except that on the inner surface of the right thigh, and upon the right buttock, tickling gives rise to a very disagreeable feeling, and marked differences of temperature, as between water

nearly boiling and water at the natural temperature of the day, are not ap-
preciated, though the sensibility to touch and pain in these parts seems to be
nearly natural.   The bladder is sluggish still, and the rectum is not yet quite
under control, but both are recovering fast.   Indeed, the chief complaint of
the patient now is, that the disagreeable feeling of constriction around the
abdomen will not wear off.

⁎ The treatment prescribed at first has been continued throughout, the
blisters being repeated at intervals of a week or ten days.

CASE 2.—John R——, aged thirty, an ostler, living in B Mews, York-
terrace, Regent's-park, admitted into Burdett ward, Westminster Hospital,
under the care of Dr. Radcliffe, on Feb. 15th, 1859.

Present condition.—The patient is a short, squat man, thin and sallow,
with his head twisted to the right shoulder, and with his teeth pressed
tightly together by muscular spasm.   By a strong effort he can turn his
head round a little, and by a still stronger effort he can separate his teeth
so far as to allow the tip of the tongue to be protruded, but no more.
Mastication is entirely impracticable, and swallowing is slow and difficult.
At the back of the neck, extending from the occiput to the fourth or fifth
vertebra, is an undefined swelling, hard, firm, somewhat elastic, and not at
all tender on pressure, or painful, except when the neck is moved, when a
sharp pain shoots through it.   A sharp pain is also felt along the cervical
portion of the spinal column whenever the spine receives a jar in walking,
or in any other way ; and for this reason the patient walks very softly and
gingerly, and is very ready to cry out if anyone is likely to run against him.
Swallowing is difficult, not from any soreness of the throat, but in conse-
quence of a spasmodic condition—a condition which not unfrequently pro-
duces choking during the act of eating.

The right arm is almost entirely paralysed as to voluntary movement,
and its cutaneous sensibility appears to be decidedly exaggerated ; the left
arm, on the contrary, preserves its power of voluntary movement, and its
cutaneous sensibility is in great measure abolished.   Reflex movements
can be excited in both arms, especially in the left.   The sensibility to touch,
pain, tickling, and differences of temperature, as tested in the usual way
and compared with that of four patients in the same ward, is decidedly in-
creased in the right arm ; whereas it is all but abolished in the left arm.
On the contrary, the muscles are sufficiently sensitive to deep pressure in
the left arm, and all but, insensitive to such pressure in the right arm.
There is no very marked difference in the warmth of the two arms ; but
the right hand and arm is a trifle warmer than the left, especially when
both hands have been kept in the trousers' pockets for a few moments.

The face is pale and sallow, and there is no difference in vascularity
and warmth on the two sides.   The pupils also are neither dilated nor con-
tracted ; and they exhibit no inequality as to size.

For the rest, there is no weakness or numbness in the legs ; there is
nothing wrong in the bladder or rectum ; there are no ''head-symptoms ;''
and there are no signs of syphilis.

Previous history.—Seven months ago, soon after having had his hair cut,
he felt a sudden stiffness in the back of the neck.   The next day his head
became twisted on one side, as at present, and he experienced some difficulty
in opening his mouth, in masticating, and in swallowing.   These symptoms
were unaccompanied by thirst or loss of appetite.   During the following
three or four weeks the swelling of the back of the neck made its appear-
ance, and, contemporaneously, the right arm became weak, and the left arm
benumbed.   At first the head could be turned round into its natural posi-
tion, and the mouth opened by a strong effort, and little or no pain was

provoked by so doing. A few weeks later these movements had become al-most impracticable, and any attempt to accomplish them gave rise to deep pain in the neck. The pain caused by a jar to the spine is a compara-tively new symptom.

Twelve months ago the patient, it appears, was an inmate of the hospital in which he now is for rheumatic gout in the knees, ankles, and feet, espe-cially in the feet; but this attack was of no great severity, and all traces of it had disappeared for full three months before the present symptoms made their appearance. Previously to this attack of rheumatic gout the health of the patient appears to have been sufficiently good, and his habits quite up to the average in sobriety and "steadiness." Once, however, ten years ago, he had syphilis, without constitutional symptoms—certainly without anything like nodes.

I omit what is said about treatment and the progress of the case, and add the last note only.

April 4th.—The head is still a good deal turned, but the mouth can now be opened, and mastication and deglutition are unattended with difficulty. The right arm is somewhat weak, and the left arm somewhat numb, but there is not much the matter with either arm as to sensibility and motility. He leaves the hospital to-day, in order to pay a visit to some friends in the country.

Art. 25.—On Progressive Locomotor Ataxy.

By Dr. Radcliffe, Physician to the Westminster Hospital, and to the National Hospital for Paralysis and Epilepsy.

(Lancet, Aug. 19, 1865.)

This remarkable disorder, which formed the subject of a clinical lecture delivered by Dr. Radcliffe, has hitherto attracted little atten-tion in this country. It was discovered seven or eight years ago by M. Duchenne (de Boulogne), and described under the name of ataxie locomotrice progressive.

"In it," says Dr. Radcliffe, "there is no deficient action of the will upon the muscles individually, and no loss of muscular force or change of muscular structure; but there is deficient action in that involuntary instinctive co-ordinating power by which various groups of muscles are made to work harmoniously together in such acts as standing, walking, or handling. The term ataxy (a, privative, and τάξις, order), which has reference to the deficiency in proper co-ordinating power, is not very fortunate, for the adjective ataxic is very commonly used in a different sense, as in ataxic fever, where what is meant is low fever in which nervous exhaustion is the pre-dominant condition. To meet this difficulty other names have been suggested; but the satisfactory name has yet to be found, and for the present, therefore, we must be content to use the one employed originally, and call the disease in question ataxie locomotrice pro-gressive, or progressive locomotor ataxy, or ataxy simply.

"Until M. Duchenne (de Boulogne) drew attention to it, ataxy was confounded with spinal paralysis in general, and especially with that vague form of this paralysis which is known under the name

of *tabes dorsalis*. The disorderly movements of the muscles were regarded as symptoms of paralysis. It was not perceived that the muscles in which these disorderly movements were manifested were healthy, and behaved well in all respects except when they were called upon to act in concert. Moreover, it was not known that this loss of co-ordinating muscular power simply was associated with other symptoms in a definite category. In a word, to M. Duchenne (de Boulogne) must undoubtedly be ascribed the honour which belongs to him who discovers a disease, sufficiently definite in its characters, which had been confounded previously with other and very dissimilar diseases.

" The case which serves me for a text is now in the wards. It is that of J. C——, a sailor, thirty-four years of age, living at Islington, and admitted into the National Hospital for Paralysis and Epilepsy on the 3rd of April, 1865. The notes I have run thus :—

" *Present condition.*—J. C—— is a man somewhat under the average height and weight, well proportioned, well developed as to muscle, especially in the upper parts of the body, with scarcely any subcutaneous fat, with abundance of brown hair on the head and face, and with a complexion much dried and browned by long exposure to sun and sea.

"He is capable of walking without a stick, but his gait is peculiar —staggering, precipitate, the legs thrown about vaguely and spasmodically, and the heel brought down with force at each step. With his eyes shut, or in the dark, he reels over at once, and would fall helplessly unless prevented from doing so. In the sitting posture he can lift either leg steadily into any position, and keep it there, and when the leg is put out in this manner, he can keep it extended in spite of a very strong effort on my part to flex it. In order to do this, however, he must see what he is doing, for if his eyes are shut the leg at once becomes unsteady, and little force comparatively is required to bend it. The right leg is a little weaker than the left, but not to any very considerable degree. He finds it very difficult to come downstairs, or to quicken his pace much, and he is speedily fatigued by the acts of standing or walking. On being told to shut his eyes and touch his nose with the forefinger of each hand in turn, he did so with tolerable accuracy, especially with the forefinger of the left hand. On being told to stretch out his arms, and keep them out, he did so quite well, but only so long as he was allowed to see what he was doing, for on holding a book up before his eyes, his arms, shoulders, neck, and head—the upper part of his body generally—at once became affected with convulsive titubation. When the book was taken away these movements speedily came to an end, but not before they had issued in a fit of crying and sobbing, which was not a little distressing to witness. This fit took the patient quite by surprise, and it could not be accounted for by the examination having been conducted roughly, or carried on for an undue length of time ; indeed, the holding of the book before the eyes, which was its immediate cause, did not occupy more than a minute at the most.

"The muscles of the lower limbs generally are less developed than those of the upper limbs and trunk, but there is no appearance of wasting in them. Their electro-contractility is perfect; they stand out firm and hard when made to contract by the will, and the contraction seems every whit as strong as it ought to be. Indeed, as has been stated already, when the leg is put out and stiffened, it is not in my power to bend it against the will of the patient, except by the exercise of great force. There is no tremulousness anywhere; and no marked reflex movements are produced by tickling the soles of the feet.

"What the patient complains of chiefly are excruciating, stabbing, boring, nipping pangs of pain, flitting from one spot to another in a very erratic manner, in paroxysms lasting from a few minutes to twelve, twenty-four, or forty-eight hours; and generally fixing upon one spot only in any single paroxysm. These pangs are most frequently felt in the two feet, especially about the outer side of the metatarsal bone of the little toe; they are also felt not unfrequently at the back of the thighs, in the nates, and in the upper arm about the lower part of the belly of the biceps. They are scarcely ever absent, especially at night; at night, too, there is often a sensation of great coldness, with some degree of constriction, in the painful parts.

"Measured by the compasses, tactile sensibility is found to be much impaired in the feet (especially in the soles), in the lower halves of both legs, and to some degree also in the back of the thighs, in the nates, and in the palms of the hands. The ground is felt very obscurely, but so far as it is felt the sensations are accurate—that is to say, it does not seem to the patient as if there were elastic cushions, pebbles, or other imaginary bodies, or as if there was nothing at all, under the feet.

"Very rough pinching is scarcely at all felt in the benumbed parts, but elsewhere the sensibility to painful impressions is keen enough.

"In the benumbed parts, also, and in a lesser degree in some other parts, muscular sensibility (and with it probably the proper sensibility of the joints and bones) is manifestly diminished. In bed, for example, when there is no light, J. C—— says that he cannot clearly tell where his feet are, and that not unfrequently his legs get quite out of bed without his knowledge. There is also very little feeling of pressure when the muscles of the feet and legs are squeezed with considerable force; and in the arms, as well as in the legs, the faculty of measuring and adjusting the amount of muscular action necessary for any given act is evidently not as much alive as it should be. For instance, when two weights are placed in his hand one after the other, one of them being at least a pound heavier than the other, he finds it difficult to say with certainty which is the heavier of the two.

"The sight of each eye is defective, and glasses afford no relief. The pupils are equal in size, and respond fairly to the light. The conjunctivæ are injected. There is no arcus senilis. There is no squinting or ptosis.

"The hearing of each ear is so dull as to make it necessary to speak in a very loud tone in order to be heard. There are also constant singing and booming noises in the ears—'almost like the wind in the shrouds,' he says.

"The memory is bad, the spirits are very despondent, the head generally 'feels very heavy,' and of late (this statement is volunteered by the patient) there has been a frequent temptation to commit suicide.

"The pulse is feeble, and about 70 in the minute. The appetite is good. The bowels are somewhat constipated. In any case a long time is spent over a stool: 'it wont come out,' is the patient's own description of the trouble in this quarter. The urine is also voided slowly and with difficulty, although the urethra is free from stricture ; and now and then it escapes in bed at night. Sexually, the state may be spoken of as approaching to, if not amounting to, spermatorrhœa.

"*Previous history.*—Five years ago, J. C——, it appears, began to suffer from pains in the legs and back, and to be unsteady in his gait ; about the same time, also, his sight and hearing began to fail ; and from that time to this he has continued to get gradually worse and worse. Four years ago he had a sunstroke in the West Indies, of which the immediate symptoms were violent agitation and shaking, without loss of consciousness, and for which he was taken into an hospital and bled ; but this accident was twelve months *after* his present malady had commenced, and therefore it is not possible to look upon it as a cause of this malady.

"C—— was at sea seventeen years in all, chiefly in hot climates, as the West Indies and the West Coast of Africa ; and he continued at sea three years after he had begun to suffer from unsteadiness of gait and from the other symptoms which have just been mentioned. Once during the time he was at sea he had chancres, without secondary symptoms ; and repeatedly he had diarrhœa : but, with these exceptions, his health on all occasions appears to have been very good. He says that he was always very careless, often sleeping almost without clothes upon the bare deck or upon the ground ; and that he was always 'too much given to drink and women.' For the last two years the sexual power has been much damped ; but before this time, according to his own showing, he appears to have been little better than a very satyr. Two years ago, when obliged to abandon his calling as a sailor, he was for a while treated in the hospital at Quebec for rheumatism. Afterwards he found his way to this country, and became an out-patient first at one hospital and then at another. During this time he appears to have been frequently blistered along the spine, and on one occasion to have been salivated. For the rest, I have only to add that his father died early in life of consumption ; that his mother died young from some unknown chronic disease ; and that a brother, the only member of the family besides himself, is now dying of the disease which proved fatal to his father.

"M. Duchenne, whose description is the best as well as the first, marks out three stages in the course of the malady of which this

case is an example. In the first stage, the patient suffers from paralysis, often temporary only, of one or other of the motor nerves of the eye, from some degree of amaurosis, usually accompanied by unequal pupils, and from the peculiar boring erratic pangs of pains from which C—— suffered. In the second stage, in addition to the symptoms of the first stage, the characteristic unsteadiness of gait begins to show itself, together with diminished sensibility to touch and pain in the skin of the lower parts of the legs, in the skin of the soles of the feet especially, the interval between the first stage and the second varying in length from a few months to several years. In the third stage the malady becomes more profound and general, the disorder in involuntary co-ordinate movement increasing in the legs, and extending to the upper parts of the body, the anæsthesia increasing in the parts first affected, and extending to other parts, not of the skin only, but even to the muscles, joints, and bones. M. Duchenne does not consider the affections of the bladder, the rectum, and the genital apparatus as essential symptoms of the disease in any one of these three stages: he speaks of them as 'epiphénomènes' only.

"So far as it goes, the history of C—— does not tally with this division of the disease into stages; for in it the failure of sight, the pains, and the irregularity of instinctive co-ordinate movement are seen to have made their appearance together. Nor is this history altogether exceptional in this respect; and therefore the only conclusion to be drawn is that there are some cases, perhaps the majority, in which the symptoms admit of being grouped in the three stages indicated by M. Duchenne.

"In the majority of cases, undoubtedly, the principal symptoms of ataxy agree with those which are met with in C——'s case. There is the same irregularity of involuntary co-ordinate movement in muscles perfectly healthy in other respects, the same peculiar pains, and the same anæsthesia. Still there are other cases in which the pains or the anæsthesia are either not very conspicuous phenomena or else absent altogether. Thus, I have met with four cases out of seven, not very advanced in degree, it is true, in which there were no pains to speak of, and with two cases (out of the seven) in which there was no anæsthesia. In the majority of cases, perhaps, the eyesight fails at an early period, and in many cases this failure is associated with some paralysis, often transitory, of the motor nerves, one or other, of the eye, or of some branches of the motor nerves of the face; but there are other cases in which none of these phenomena are present. In a word, the affections of the bladder, rectum, and genital apparatus are not the only features which must be looked upon as accidental—as 'epiphénomènes;' and the simple truth is, that the idea of the disease becomes clearer just in proportion as this fact is clearly realized.

"Ataxy, it is said, may be confounded with several diseases, especially with simple loss of muscular sensibility, with disease of the cerebellum, with general paralysis of the insane, with general spinal paralysis and common paraplegia, with saturnine paralysis, with Cruveilhier's disease, with paralysis agitans, and with chorea, and

some other affections of the kind; but fortunately, as a rule, very little attention will serve to prevent such confusion.

"Simple loss of 'muscular sense' has been supposed to be the cause of ataxy, and undoubtedly this is a malady frequently associated with ataxy, and most easily confounded with it. In *simple* loss of muscular sense, however, the sight can supply what is lost; and thus when the eye is open and the attention alive, the involuntary co-ordinate movements as well as the voluntary movements of the affected muscles are all executed regularly.

"In disease of the cerebellum there appears, at first sight, to be the same disorder in muscular movements as in ataxy, but this similarity is deceptive. There is now, curiously, in the same ward, and also under my care, a boy in whom there appears to be some congenital defect in the cerebellum—want of due development, probably. This boy has a very peculiar gait: he reels and rolls about in walking, as if he were giddy or drunk: there is nothing peculiar in the way in which he plants his feet: and this way of walking is precisely that which appears to be, more or less, characteristic of disease in the cerebellum. In ataxy, on the other hand, the gait, as has been said, is staggering, precipitate, the legs thrown about vaguely and spasmodically, and the heels brought down with force at each step. There is something very peculiar in the way in which the feet are planted: the gait does not give the idea of giddiness; there appears to be some want of balance between the flexors and extensors in each leg, the flexors having the advantage; and, in addition, the muscles, when they act, seem to contract with a sort of jerk—spasmodically. In *certain* diseases of the cerebellum, also, other symptoms are likely to be present which will assist in the formation of a correct diagnosis, especially violent pains, augmented by movement in one or other part of the head, and frequent and obstinate vomiting. Moreover, in these diseases the onset is generally sudden, and the progress uncomplicated with the peculiar pains and anæsthesia of ataxy proper.

"In general paralysis of the insane, the hesitation in speech, the tremulousness of the lips and tongue, the general tremulousness, the true paralytic weakness of the muscles as to voluntary movement, and the mental condition of the patient, must readily serve to prevent the unsteadiness of gait and other evidences of disordered co-ordinate movement from being confounded with those which occur in ataxy; and in other respects also the features of the two diseases are sufficiently distinct.

"In general spinal paralysis and in common paraplegia there is true paralysis, more or less complete, of the muscles as to voluntary power, and the muscles, moreover, are much damaged as to their nutrition and contractility, and generally as to their sensibility, too. In the majority of cases, also, formication is associated with numbness, and, what has never yet been noticed in ataxy, the sensibility to differences of temperature is much impaired or altogether lost in the paralysed parts. Very generally there is tenderness in some part of the spine, and not unfrequently pain in the same region or in the paralysed parts; and if there be pain, it is, as a rule, more

like dull rheumatic aching than like the peculiar excruciating, stab-
bing, boring, nipping pangs of pain, flitting from one spot to another
in a very erratic manner, and occurring in paroxysms of varying
duration, which are present in C——'s case, and which are rarely
absent in cases of the kind. And in those cases where progression
is possible, the gait is almost always sufficiently characteristic—*not*
staggering, precipitate, the legs thrown about vaguely and spasmodi-
cally, and the heel brought down with force at each step, as in
C——'s case and in other cases of the kind, but hampered and slow,
partly from want of voluntary power over the legs, and partly from
the muscles becoming stiff in moving, each leg being brought for-
ward with evident difficulty, even with the help of an upward hitch
of the whole side of the body belonging to it, and the part of the
foot first brought in contact with the ground being, as a rule, not
the heel, but the toes.

"In saturnine paralysis it is the voluntary power over certain
muscles which is impaired and gone, and the muscles are atrophied
and deprived of electric contractility when the malady has reached
its height. Indeed, it is difficult to understand how this affection
can be confounded with ataxy.

"In Cruveilhier's disease, as I showed in a former lecture (the
Lancet, Jan. 16th, 1865), the wasted muscles are changed in great
measure into fat, and, as it were, dissected away, and any errors in
movement are such as may be accounted for by this atrophy and
absence; whereas in ataxy the muscles are plump and to all appear-
ance perfectly healthy, and the errors of movement are those which
refer to want of proper involuntary co-ordinating power. More-
over, in Cruveilhier's disease the pains and anæsthesia of ataxy are
not met with.

"In chorea there is a great want of co-ordinating power in muscular
movement, but the rest of the history is quite different from that of
ataxy—so different and so well known as to make it altogether un-
necessary to recall it to your memory. And so likewise in regard
to those other affections which come into the same category as
chorea.

"And lastly, in paralysis agitans a mistake cannot well be made, for
the general features of the disease are more akin to those which are
present in general paralysis than to those which are characteristic of
ataxy.

"In some cases Duchenne's disease has been associated with other
diseases of the nervous system, as with Cruveilhier's disease, or with
general spinal paralysis or common paraplegia, and in these cases
the distinctive characters of the disorder may be somewhat masked;
but in ordinary cases there can be but little difficulty in arriving at
a correct diagnosis.

"The pathology of ataxy is yet in its infancy. The most marked
change detected after death as yet is degeneration and disappear-
ance, more or less complete, of the posterior columns and of the
posterior roots of the nerves of the spinal cord. Mr. Lockhart Clarke
has shown me some beautiful microscopic slides, which furnish
most conclusive proof of this fact. But I am not prepared to

think that these are the only changes to be met with. On the contrary, I fully believe that corresponding changes will eventually be found in those parts of the cerebellum and cerebrum, wherever they are, which have specially to do with the co-ordination of muscular movements.

" The prognosis is full of gloom. The progress from bad to worse may be slow, very slow, but as yet there is too much reason to believe that the term " progressive " in the sense of going on from bad to worse is not misapplied. Still I know of two cases which justify a much more hopeful opinion.

" The treatment in C——'s case consists in good food and rest, in hypophosphite of soda and cod-liver oil, and in the electrifying of the region of the cord with free positive electricity, and we shall see in time whether any good will come of it. I am not very sanguine; at the same time I have this to encourage me—that this is the kind of treatment which has done and is doing good in the two cases to which I have just referred."

ART. 26.—*On a Case of Partial Disease of Left Half of the Spinal Cord, causing Anæsthesia on one Side, and Paralysis of Movement on the other; with Remarks on the Transmission of Sensitive Impressions in the Spinal Cord.*

By Dr. P. Victor Bazire, Assistant-Physician to the National Hospital for Paralysis and Epilepsy.

(*Lancet,* July 29, 1865.)

The following rare and most instructive case is recorded by Dr. Bazire :—

" In a recent and valuable communication to the *Lancet* (May 27th, 1865), Dr. Radcliffe has drawn attention to a form of disease of the spinal cord first noticed by Dr. Brown-Séquard, and he has published two important cases which had come under his observation. Such cases are of so rare occurrence (12 only having yet been published by Dr. Brown-Séquard), and the importance of carefully recording them is so great, that I am induced to bring the following under the notice of the profession. Although, fortunately for the patient, there has been no opportunity of verifying the diagnosis by a post-mortem examination, the symptoms observed are in all essential particulars so similar to the phenomena noted by Dr. Brown-Séquard in his experiments, after a section of a lateral half of the cord, and in the clinical cases which he has published in his " Journal de Physiologie" (January and April, 1863, pp. 124 and 232), and in his course of " Lectures on the Central Nervous System" (Lectures III. and VII.), that I think I am warranted in diagnozing the case as one of partial disease of the left half of the cord. I say " partial" because it will be seen, on reading the case,

that, with the exception of the nerves of temperature, the other kinds of nerves were not completely paralysed, as they would necessarily have been if the whole of the left half of the organ had been implicated in the disease. I may add, further, that as the patient came under my observation only sixteen months after the first manifestation of the symptoms, some of them—as, for instance, the increase of temperature in the leg, the mobility of which was impaired—may have been present at first, although I did not observe it when I examined the patient. Likewise, the increase of sensibility to touch and pain in the same limb may have been very marked in the beginning, although I must admit that it was scarcely appreciable in the repeated examinations which I made.

"The history of the case is as follows :—

CASE.—F. C——, a ship-store dealer, aged thirty, unmarried, a tall, stout, strongly-built man, with a very pale complexion, came under my care in November, 1864, at the National Hospital for Paralysis and Epilepsy. There is no history of paralysis in his family antecedents. His father died of cholera a few years ago, and had always enjoyed excellent health ; his mother is living and healthy. He has himself always enjoyed very good health, with the exception that in 1858 he had hard chancres on the glans penis, followed some time afterwards by sore-throat and syphilitic roseola. He has never had epilepti-form convulsions. As to his mode of living, he admits that he has at one time led a very irregular life and been guilty of sexual excess.

In May or June, 1863 (he cannot exactly remember which), whilst enjoying apparently sound health, he found, on getting out of bed one morning, that his *left leg* was incompletely paralysed. He had committed no excess on the preceding day, and had gone to bed in his usual state of health. He had considerable difficulty in getting downstairs from his bedroom, as his left leg bent under and dragged after him. He had no pain in his spine, no tingling in the leg or toes, no sensation of numbness, &c. There was not the slightest diminution of motor power in the *right* leg ; but three days afterwards, on his taking a warm bath, he noticed for the first time that he could not feel the temperature of the water with his *right* leg. From the beginning he has had some difficulty in passing his urine, and at the outset he was not able to retain his motions.

When he came under my observation in November, 1864, his intellect was unaffected, and there was no trace of paralysis of the face or upper extremities. His sight and hearing were good, his pupils equal, and he had no arcus senilis. He walked very lame, through his left leg dragging after him and being shuffled along, not leaving the ground fairly. He was obliged to use a stick when walking. The motor power of the *right* limb was perfect, however, and he could stand on it alone without resting on any support. The *left* lower extremity was therefore the only one at fault, so far as power was concerned, although there still remained a fair amount of strength in it, as shown by the difficulty I had in bending his knee against his will when he was sitting down. Both legs looked well nourished, and measured fifteen inches in circumference round the prominent part of the calf. To the hand no difference of temperature was appreciable between the two sides, and the patient was not conscious of any. On testing the different kinds of sensibility, the following remarkable differences were made out between the two limbs at different periods since the patient came under my observation, and once, in February, 1865, by Dr. Brown-Séquard, who kindly examined the patient with me :—

" *Left, or incompletely paralysed leg.*

"At a distance of from 1½ in. to 2 in. the two points of the æsthesiometer applied to the interior surface of the thigh are distinctly felt.

" Pricking and pinching are felt perfectly, perhaps a little more acutely than in the arms and trunk.

" Sponges dipped in hot or cold water respectively give the normal sensation of heat or cold.

" On tickling the sole of the foot, the sensation is perfectly perceived, and no involuntary drawing up of the leg occurs.

" The passage of a magneto-electric current through the muscles of the limb gives pain, which is perhaps a little more marked than when the same current is passed through the muscles of the arm.

" A strong magneto-electric current determines very feeble contractions.

" The patient knows perfectly well the exact position of this limb without looking at it, after I have shifted it from its previous position. When his eyes are closed he can bend, flex, elevate, and lower this limb, move it from or approximate it to its fellow with regularity and precision, though with great feebleness and difficulty. Weights raised by the left leg seem to him heavier than when raised by the right, although he can appreciate differences in the weight on this side ; and he can tell perfectly also the resistance, density, and consistency of objects.

" *Right, or non-paralysed leg.*

"The two points are felt as one, even when six inches apart.

" Pricking and pinching are **very** obscurely and very slightly felt.

" No sensation of heat or cold is in the least perceived. A very hot metallic spoon on one occasion made him wince from *pain*, but did not give him the sensation of *heat*.

" The patient feels very obscurely when the sole of this foot is tickled with the feathery part of a quill ; yet the corresponding limb is drawn up involuntarily.

" The same magneto-electric current passed through the limb gives scarcely any pain at all. Moist conductors were used in both instances.

" The same current determines very powerful contractions.

" The same facts are noted on the right side, with the exception that the movements are performed on this side with greater force and rapidity. The other tests, of weight, resistance, and consistency of objects, give the same results, thus showing the integrity of muscular sense.

" To sum up, then, when I examined the patient in November, 1864, and on repeated occasions subsequently till March, 1865, I found : On the *left* side, imperfect motor paralysis co-existing with perfect integrity of the sensibility to touch, pain, tickling, and temperature, and very slight impairment of muscular sense. Nay more, there seemed to be a certain amount of exaggeration of sensibility to pricking and to touch, the latter exemplified by the patient feeling the two points of the æsthesiometer, placed in the direction of the long axis of the limb, when only from an inch and a half to

two inches apart, the normal distance being usually greater. On the *right* side, on the contrary, there was not the least diminution of motor power, whereas the sensibility to touch, to pricking, to tickling, and to galvanism was considerably diminished, and the sensibility to differences of temperature was completely abolished. Only one kind of sensibility was normal—namely, *muscular sense*.

" These singular differences between the two lower limbs did not extend higher than the fold of the groin. There was no spontaneous pain complained of in the spine, nor was any elicited on making hard pressure on, or on knocking the spinous processes of the vertebræ. There was no sensation as of a circular band constricting the abdomen. The bowels were very costive : the sensation produced by the passage of motions was perfectly perceived. The bladder was weak, for the urine came out very slowly, not in an arched jet as in health, and the patient was obliged to satisfy the want as soon as he felt it. Virility was almost completely extinct, erections being rare and imperfect.

" In February, 1865, on carefully examining the patient with Dr. Brown-Séquard, no appreciable improvement of the various kinds of sensibility was discoverable in the right limb. The amount of motor power in the left limb was, however, increased, for the patient dragged it less in walking, and he could perform certain acts which he could not accomplish a few weeks previously, such as rising from the kneeling to the standing posture without taking hold of a neighbouring object.

" In the beginning of April, 1865, the following notes were taken:— The motor power of the *left* leg has continued to improve since last report. There is *no difference now* between the two lower extremities as regards *tactile sense*. The patient can distinguish equally well, and at the same distances, the two points of the æsthesiometer applied in the longitudinal axis of the limb. *Tickling* is felt equally well in both thighs, but the sensation is less acute in the right foot and leg than in the corresponding portions of the *left* limb. When the sole of the right foot is tickled, very marked reflex movements are excited in the right limb. Tickling the sole of the left foot does not produce the same degree of reflex movement in the corresponding limb. *Pricking* is felt less acutely in the right foot, leg, and lower four-fifths of the right thigh than in the analogous parts on the left side. Over the upper and inner fifth of the right thigh the sensation is the same as on the left side. Sponges dipped in hot water now give the sensation of heat on the right side, but not so correctly as on the left, and cold metallic surfaces also convey the impression of cold.

" May, 1865.—The improvement has continued since, but the patient is far from being well yet. Although his left leg has recovered a great deal of power, it still drags when walking ; the increase of strength in it is shown, however, by its being able to bear the weight of the body for a few minutes when the right limb is lifted off the ground. Differences of temperature are not yet appreciated when small in degree. The other kinds of sensibility are normal. The treatment has consisted in the administration, for a lengthened

period, of iodide of potassium, in five-grain doses three times a-day, and for some time of hypophospite of soda, and the use of sulphur baths twice a-week. Lately galvanism has been had recourse to, *dry* conductors being used for the *right* limb, and *moist* ones for the *left*.

"This case is of great interest, I believe, because of the many important conclusions which may be drawn from it. First, as to its nature. There can be little doubt but that the symptoms were due to a lesion of a lateral half of the spinal cord, for had the two halves of the organ been affected, there would have been paralysis of motion in both legs, and not in one alone. That the deficiency of power was not due to an affection of the nerve-trunks of the left limb is sufficiently proved by the concomitant impairment of the functions of the bladder and rectum, and of the sexual aptitude. If it be admitted that the diminution of motor power in the left leg was due to a lesion of one-half of the cord, that lesion must have been situated in the left half of the organ; and, as a corollary to this proposition, we are compelled to admit that as there was paralysis of sensation, not in the *left* limb, but in the *right*, the motor power of which was unaffected, the nerves of sensation must decussate in the cord. Next, the difference in the degree to which the various forms of sensibility were impaired, leads us to infer that there must be in the spinal cord (as Dr. Brown-Séquard has tried to prove by a number of clinical cases*) special and distinct nerves for the transmission of the special kinds of sensibility, just as amongst the cranial nerves we find special nerves for the conduction of impressions of light, sound, taste, and smell. In this case, only one form of sensibility was completely abolished—namely, that which gives us the notion of differences of temperature. And here I may observe, that the circumstance of a very hot metallic spoon having made the patient wince on one occasion when his right leg was touched with it, should not be regarded as a sign that the sensibility to heat was not entirely lost in that limb. The patient affirmed that he only felt pain, without having any notion of the temperature of the object in contact with his leg. And his statement need not appear singular, because the sensation of pain caused by a burn is perfectly distinct from the notion of temperature conveyed at the same time, as is shown in the instance of caustics, which give pain on destroying the tissues. This pain, although often described as of a burning character, is clearly distinct from an impression of heat, since the caustic itself is not of high temperature. The incompleteness of the paralysis (with the one exception of the loss of sensibility to differences of temperature) indicated that the whole left half of the cord was not implicated. I may add that Dr. Brown-Séquard has been led, from his experimental researches, and from many clinical cases, to infer that the nerves of muscular sense *do not decussate* in the spinal cord like the other nerves of sensibility, but, like the

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* See Dr. Brown-Séquard's "Courses of Lectures on the Physiology and Pathology of the Central Nervous System," p. 125, and also *Journal de Physiologie,* January and April, 1863.

motor nerves, go up to the medulla oblongata before decussating. In this case muscular sense was perfect in the anæsthetic limb, and was very slightly impaired in the left, or paralysed leg. Again, from the limitation of the abnormal symptoms to the lower limbs, it may be conjectured that the lesion was situated low down in the spinal cord, on the left side, and in the grey matter, probably on a level with the tenth or eleventh dorsal vertebra, and, perhaps, chiefly in the anterior cornu. As to the nature of the lesion, we may suppose, from the suddenness of the attack, that hæmorrhage was the determining cause. Another important inference may also be drawn from this case, with regard to the conductors of the various forms of sensibility. On examining the patient in the beginning of April I found that *tactile sense* was equally good in both lower extremities, and that *tickling* was equally felt in both thighs, but a little less acutely in the *right foot* and *leg* than in the corresponding segments of the *left* limb. These two forms of sensibility had, therefore, been recovered almost perfectly, but the other two—namely, sensibility to pain and to differences of temperature, had not improved in the same degree. Thus, *pricking* was felt imperfectly, and *differences of temperature* were obscurely perceived in the right foot and leg and lower four-fifths of the right thigh.

" These facts are in accordance with the conclusions which Dr. Brown-Séquard has been led to adopt from his experiments and from clinical cases : namely, that the nerves of touch and tickling proceed for a certain distance along the cord before they decussate, whilst the nerves of temperature and pain cross at once from one side of the cord to the other. (See *Journal de Physiologie*, January, 1863, p. 144.)

" In this case we may fairly suppose that as the lesion was situated low down in the cord, fewer nerves of touch and tickling were implicated than nerves of pain and temperature."

Art. 27.—*A Case of Hæmorrhage into the Cerebellum.*

By M. Laforêt.

(*Gaz. Hebd. de Méd. et de Chir.*, July 21, 1865.)

A quartermaster was brought to the Military Hospital at Nancy, on February 7th, 1865, at nine o'clock in the morning. He was unable to stand, and passed involuntary stools. His face and trunk were covered with livid blotches ; his eyes were bright and staring, and converged towards the nose. Intellect clouded ; answers short, partially correct, and followed by delirious talk. He pointed to his head, as if in pain there, without indicating any precise spot. His face was sometimes calm, and sometimes expressed terror ; on which occasions, whether from his having frightful hallucinations or from his being convulsed, he suddenly sat up in bed, moved about as if he tried to escape, executing all the while automatic movements invariably inclining him to the left. On this agitation disappearing

he dropped down prostrated, lay on his back, with his nucha so stiff that his head and trunk looked as if made of one piece. When he was quiet, his lower limbs were semiflexed and inclined to the left; his upper extremities hung out of bed, and were not anæsthetic. There was occasional carphology, and occasionally the patient raised his hand to his face and would have scratched it unless prevented. He sometimes squeezed affectionately the hands of persons standing by his bedside, and then suddenly tried to bite them.

Respiration and deglutition normal; occasional efforts at vomiting; no deviation of tongue; notable diminution of the temperature of the body. In the course of the afternoon the symptoms grew worse, the patient often raised his hands to his throat as if he wanted to remove some constricting band. The left limbs, although convulsed, were less so, however, than the right. Death took place at two o'clock the next morning.

The following particulars were subsequently obtained about the previous history of the case:—The disease set in suddenly on the 4th of February, at 9 P.M., after excessive sexual connexion, with a sudden turning round of the trunk, loss of consciousness, convulsions, and vomiting. The patient recovered his senses after some time, and complained of intense headache. On the next day weakness of the limbs and headache were complained of, but the patient managed to go out. On the second night he was seized with vomiting, involuntary evacuations, and partial delirium, and in the course of the ensuing morning he was brought to the hospital.

P.M. eight hours after death:—Penis in a state of semi-erection, with the glans uncovered. (During life it was not noticed whether there was persistent erection, or any seminal emission.) The meningeal vessels were shrunken in the frontal region, but began to dilate about the crown of the head, whilst in the occipital region they were gorged with blood. The brain was of normal consistency; the grey substance was normal, but the white matter presented both the condition known as sandy injection and small sanguineous cysts, some of which were of the size of lentils. The ventricles were nearly dry. The cerebellar vessels were gorged with blood. The cerebellum was enlarged, and its lobes looked rounded. Its grey substance was of a pink colour, evidently due to blood-infiltration. On section, a cyst of the size of a walnut, containing semi-coagulated black blood, was found in the centre of the right lobe. The walls of the cavity were scarcely softened, but were deeply tinged with blood for the depth of about one line. The rest of the cerebellum exhibited the same condition of sandy injection noticed in the brain.

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Art. 28.—On Paralysis of the Palate in Facial Palsy.

By Dr. SANDERS.

(Edinburgh Medical Journal, August, 1865.)

The author begins by stating that, on the subject of unilateral paralysis of the velum palati in connexion with the paralysis of the

portio dura, the statements of authors are curiously contradictory. Thus, whilst some maintain that the palate is never affected, or that its distortion is merely an accidental coincidence, others recognise the affection, but describe different or even opposite conditions of the paralysed part. From his observations, however, the author has been enabled to draw the following conclusions:—

1st. That in paralysis of the palate, due to lesion of the portio dura, the levator palati, and azygos uvulæ, are the only muscles affected ; the other muscles of the palate—viz., the circumflexi, the palato-glossi, and palato-pharyngei, are not paralyzed nor impaired in their actions.

2nd. That, consequently, the true form of hemiplegia of the palate, in lesion of the portio dura, is partial, and consists of a vertical relaxation or lowering of the corresponding half of the velum palati, with diminished height and curvature of the posterior palatine arch on the paralyzed side. This condition is due to the paralysis of the levator palati. The anterior palatine arches are nearly equal on the two sides.

3rd. That there is reason to doubt the accuracy of the description usually received of the horizontal displacement of the palate and uvula to the sound side, when affected in facial palsy. Such deviation would imply paralysis of the circumflexus palati (and probably also of the palato-pharyngeus), which does not receive its nervous supply from the portio dura, and cannot be palsied by its lesion.

4th. That the lateral distortion of the palate due to paralysis of the portio dura, which may be expected sometimes to occur, would take place not transversely, but in the diagonal direction upwards, and to the sound side ; i.e., in the line of action of the sound levator palati, and would be accompanied by the lowering of the palatine arch on the paralyzed side, as above described.

5th. It is probable that the absence of this oblique lateral displacement, both in a state of rest and when the levator palati was in action, in the cases recorded by the author in his paper, was due to the minor degree of the paralysis, the balanced action of the unaffected muscles (circumflexi and palato-pharyngei) being sufficient to maintain the raphè of the velum in the mesial plane, in spite of the disturbance of equilibrium produced by the weakness (paresis) of one of the levators.

6th. The existence of this diagonal distortion upwards to the sound side in certain cases may have given rise to the common description of lateral deviation of the palate in facial palsy, although the phenomena presented do not correspond at all accurately with that description.

7th. That the position of the uvula varies frequently both in the natural and the hemiplegic palate, being twisted sometimes to the right, sometimes to the left, the point directed sometimes to the paralysed and sometimes to the sound side. Curvature of the uvula, taken by itself, is therefore an uncertain sign, and does not possess the diagnostic importance which has been ascribed to it. When such curvature exists, and the point of the uvula is directed to the paralysed side, the author explains it by the greater action of the palato-pharyn-

geus muscle on the paralyzed side, which is not antagonised by the partially palsied levator palati, and which acts in a more direct line, and at a point lower down on its own side than the corresponding palato-pharyngeus muscle does on the other side.

8th. If the partial hemiplegia above described, due to paralysis of the levator, be looked for, instead of the lateral displacement from paralysis of all the muscles of one side of the palate, which the common description leads us to expect, but which the author believes never occurs from lesion of the portio dura alone, it will be found that unilateral paralysis of the velum in facial palsy is by no means so rare as has been generally supposed.

9th. That the prognosis is not necessarily rendered more unfavourable in facial palsy when the palate is implicated.

ART. 29.—*On a Case of Apoplexy of the Spinal Grey Substance attended with Convulsions; with Pathological Examinations and Remarks.*

By M. GONZALEZ ECHEVERRIA, M.D.

The patient was a youth, aged eighteen, of slender but well-developed form, who had enjoyed good health up to January, 1865, when he had an attack of acute articular rheumatism. About the 10th of April following he was seized with slight imperceptible twitchings. He had no fever and no headache, but pain was caused and spasmodic contractions of the upper limbs brought on by pressing on the back of the neck. About the fifth day he took to his bed because of the gradually increasing violence of the convulsive movements. On the eighth day he was seen by Dr. Echeverria. His intellect was unaffected, and he had no pain in the head. He was strapped on to the bed, and in spite of this, his limbs were constantly thrown into violent convulsions. The movements were involuntary and instantaneous, rapidly succeeding each other, and resembling the convulsions of chorea. The patient could move his limbs suddenly, but on attempting to move them slowly, they were seized with convulsions. Pinching and pricking were felt in the trunk and extremities. Articulation is said to have been impeded from incoordination of the movements of the tongue, and yet the organ could be protruded without difficulty. Deglutition was impossible from pharyngismus, brought on by any attempt at taking food. The eyes were normal, and the pupils natural in respect of size and shape. Respiration was very laboured, and from the restlessness of the patient the pulse could not be counted. There was no fever. There was constipation, but the urine was passed naturally, and it was normal in character. There was no erection of the penis.

Chloroform inhalations were tried ; they immediately arrested the convulsions, but the latter recurred as soon as the anæsthetic influence

passed off. On account of the weak and fluttering character of the pulse the inhalations had to be given up. The convulsions returned, abating, however, spontaneously, and followed by a short period of rest, when death supervened.

Post-mortem examination forty hours after death.—No rigor mortis ; pupils largely dilated. Cervical portion of the spinal cord was alone permitted to be examined. There was firm adhesion of the dura mater to the vertebral canal, and intense congestion of the membrane. The arachnoid was not thickened or opaque, but adhered to the cord. The spinal fluid was red, and not considerably increased. On dividing the cord through the posterior median fissure blood was seen to be effused into the grey substance, chiefly in the posterior cornua, but in some places throughout the grey substance. The capillary vessels were visible to the naked eye around the apoplectic extravasation. The white substance was congested only in some spots near the posterior median fissure. Microscopical examination of the *white substance* disclosed that the nerve-fibres, both in the anterior and posterior columns, were altered ; their cylinder-axis was in a state of granular disintegration, surrounded by a fine granular amorphous matter, and filaments of connective tissue. The capillary vessels in the grey substance had undergone a granular change. The grey substance itself was composed of a connective tissue, filled with very fine granular amorphous matter, containing very few fatty globules, and in some places mixed with crystals of hæmatosine. The nerve-fibres and cells of the ganglia on the posterior roots had undergone the same alterations as those of the spinal cord itself, but to a much less degree.

The author, in commenting on the case, rejects the idea of its being an instance of spinal meningitis, on account of the absence of fever and hyperæsthesia, and, he adds, delirium and paralysis (although this latter symptom is not, as a rule, an accompaniment of meningitis, while delirium *never* occurs in spinal meningitis). He draws attention to the fact that there was no affection of the eye, in spite of the implication of the so-called cilio-spinal region of the cord ; and believes that he is warranted in concluding (against Dr. Brown-Séquard) that the transmission of sensitive impressions does not chiefly take place in the central grey matter, whilst he regards this case as wholly confirming the results arrived at by Schröder van der Kolk—namely, that "the grey matter in the spinal cord serves solely for motion, the posterior rather for reflex action and the co-ordination of movements, while sensation is transmitted upwards exclusively through the posterior and lateral medullary columns." Of the microscopical changes found in the white substance of the cord, and in the ganglia on the posterior roots, the author takes no account whatever ; nor does it occur to him that it may be possible, nay, probable, that the effusion of blood into the grey substance may have taken place just before death, and have, therefore, been a result, not the cause, of the disease.

Art. 30.—*The Pathology of Spinal Apoplexy.*

By Dr. Levier.

Dr. Levier's pamphlet is based upon a description of the following case :—The patient, a girl of fifteen, who had previously menstruated, on the 18th of April, her period being then due, was seized with acute pain in the back and loins. Menstruation did not occur, but there was a general feeling of malaise, with headache and epistaxis. The pain returned every night until the 24th of April, when both legs became suddenly paralysed ; fæces were discharged involuntarily, and sensation of desire to empty the bladder was lost. Three days later the bladder was enormously distended, but painless, and daily catheterism was required. After this there arose frequent cough, with dyspnœa. On the 9th of May the patient was admitted into the hospital, and her condition was as follows :—A bed-sore over the sacrum, œdema of the feet, fever, hurried respiration, and entire absence of motion and sensation in the lower half of the body. The temperature of the paralysed parts was constantly elevated. The sensorium quite undisturbed. An electric induction apparatus with the strongest current produced neither motion nor sensation ; and the same negative result followed the prolonged application of rheophores. On the 11th of May, the fever and dyspnœa being increased, the patient complained of lumbar pains. On the 12th, in the evening, she awoke from a morphia sleep with extreme dyspnœa, and convulsions of the left arm ; but slept again after fifteen minutes. On the evening of the 16th there were choreic movements of the right arm, with profuse sweating of the upper unparalysed parts of the body ; and subsequently ecstatic delirium during sleep. On the 18th low fever, anæmia, and emaciation, the bed-sore extending. On the 25th at noon slight shiverings, with subsequent rapid elevation of temperature ; and on the 27th a distinct access of fever without previous chilliness. On the 28th a severe rigor, continuing for an hour, and followed by heat ; this was repeated daily until the 4th of June. On the 16th of June an ecchymosis as large as a hand appeared on the right thigh, and after a few hours spread in all directions, and bullæ appeared upon its surface. The patient was in profound collapse, but quite conscious. On the 17th of June, both lower extremities were the seat of extensive moist gangrene. During the day there were involuntary contractions of the upper extremities, followed by loss of consciousness, and death towards evening.

Autopsy.—An enormous bed-sore. On opening the spinal canal, the only morbid appearance was distension of the dura mater ; and when this membrane was laid open, a quantity of clear serum escaped, mixed with white particles the size of pins' heads (fragments of the cord substance). From the tenth dorsal vertebra to the lower end the cord was softened and flattened. The pia mater was covered

by numerous winding vessels, but was free from deposits and extra-vasations. In one place it was accidentally torn. The cord, for a length of twenty centimetres (8 inches), was softened to a pulp, and of a greyish colour; and in a longitudinal section the white and grey substances were not distinguishable. The most important appearance was a long effusion of blood, not penetrating through the whole thickness of the cord, and reaching from the lower end of the dorsal region to the conus terminalis. The mass of blood was dark reddish brown, and as thick as a goose quill. The cord in its vicinity was coloured grey and yellowish brown, and displayed above some smaller and older hæmorrhages. Most probably the bleeding occurred at the posterior periphery of the grey substance, and in parts of the posterior and lateral columns. The anterior columns were simply softened. Between the reddish-brown masses the portions of the cord were variously discoloured, but above the tenth dorsal vertebra there was only white softening. In the upper part of the cord there was a circumscribed softening at the level of the fourth dorsal vertebra. The microscopic examination exhibited granular detritus, myelin, large cells with fat corpuscles and nuclei, free fat, and pigment flakes. The muscles of the paralysed limbs were wasted, and the microscope showed atrophy of the fibrillæ, and apparently a direct degeneration of their contents into a granular detritus.

The author's commentary refers, among other matters, to the exceptional character of the paralysis, by which, after only fourteen days, muscular contractility was destroyed. This must have been due to changes of material texture, and cannot be explained by the interruption of central nervous conduction. The obstinate retention of urine is also noticeable. By the destruction of the lower segment of the cord, the patient was placed in a condition like that which has been experimentally produced in animals in which paralysis of the vaso-motor nerves of the lower extremities is attended by elevation of temperature. The rigors appeared to indicate the occurrence of septic blood poisoning.

The author concludes by some account of seventeen analogous cases recorded by various authors, and by certain inferences from them with regard to diagnosis.

Art. 31.—*Syphilitic Inflammation of the Brain.*

By Dr. Kuh.

(*Prag. Med. Wochenschr.* 23, 1864; *Schmidt's Jahrbücher,* vol. cxxv.)

On the 15th January, 1864, a peasant woman, forty-seven years old, was admitted under Professor Petters. She had always had good health, and had borne several children, of whom only two were living. Ten weeks previously she suffered from pains in the genitals, with discharge, and four or five weeks later the body was covered by an eruption. There were pains in the neck, and loss of hair. Fourteen days before admission she was attacked by severe

headache and pains in the right eye, the vision of which was impaired; she also suffered from weakness of the left lower extremity. On the 16th of January, the state after admission was as follows :—Patient of middle size, of strong frame; the skin relaxed and poor in fat; the head thinly covered with hair, and as well as the chest, abdomen, and extremities, presenting an abundant reddish-brown papulo-squamous syphilide. The inguinal, cubital, nuchal, and axillary glands were swollen and insensitive; the mucous membrane of the pharynx swollen, and the tonsils ulcerated. The organs of sense were unaffected, excepting the right eye, of which the conjunctiva was strongly injected; the cornea bordered by a network of red vessels; the iris swollen, discoloured, and sluggish; the pupil distorted by posterior synechia, with photophobia, lacrymation, and impairment of sight; the thoracic and abdominal organs normal; broad condylomata on both labia; slight vaginal blennorrhœa. The patient limped somewhat with the left foot in walking. The mental faculties appeared to be unaffected.

Mercurial inunction was ordered, and the internal administration of iodide of potassium.

After the third inunction, on the 20th of January, the patient was seized by a short attack of convulsions, with headache and sense of formication, but without impairment of consciousness. Immediately afterwards, there was complete paralysis of the previously paretic left lower extremity, with ptosis of the right eyelid. The temperature 30·2° R.) was alike on both sides of the body, the pulse 72, the respiration 20, the sensibility of the paralysed parts normal, the organs of sense unaffected. There was a tendency to constipation, but the bowels were relieved by a purgative; urination normal, the urine without albumen. This condition remained unaltered until the 3rd of February, when paralysis of the left side of the face and of the left arm occurred again without impairment of consciousness. The patient complained of severe pain at the vertex, and of pain in the right unparalysed shoulder. From this time she became somewhat childish, wept frequently, and her intelligence was enfeebled and her speech slow. Temperature of the skin 30·1° R.; pulse 72; defecation and micturition normal; sleep and appetite good. The inunction to be continued.

On the 8th of February, the facial paralysis and the iritis were somewhat improved; only some brown spots remained of the eruption; the condylomata and exulcerations were healed.

On the 13th February, there was an epileptic fit that lasted about a minute, and during and after which the consciousness appeared disturbed. After the attack, the right lower extremity was found to be paralysed, and the sensibility of both lower extremities and of the left side of the face impaired. On the 14th of February, the patient was apathetic and somnolent, and no longer recognised her physicians. Urine and fæces were expelled involuntarily; the sleep was unquiet, with occasional delirium. On the 16th, there occurred paralysis of the right upper extremity. The patient ceased to speak, and only fluid nourishment could be

swallowed. On the 18th, the temperature of the surface increased; the pulse was 120; the respiration 32; the countenance turgid; the body covered with sweat; the breathing stertorous. Death followed, with tracheal rattles and deep coma.

Post-mortem.—The roof of the skull thin, containing but little diploë. On the inner surface of the parietal bones were three roundish patches of loss of substance as large as beans, with irregular eroded margins, and similar smaller patches on the frontal bone. The inner cerebral membranes were infiltrated in scattered patches, chiefly on the right, above and to the outer side, with a yellow, thick, purulent exudation, and at the vertex with serum; the vessels were much dilated, and full of dark blood. The cortical substance was in great part coloured reddish-yellow or citron-yellow, and much softened; the medullary substance on the left side of a dirty grayish white, moderately firm, in patches yellowish white or straw-coloured, softened and infiltrated with serum. In the right hemisphere were two dirty gray, greasy patches, the size of walnuts, extending outwards to the yellow tinged cortical substance, and inwards passing over into partly grayish red, partly grayish yellow, softened medullary substance. In the medullary substance were three nodules as large as hazel-nuts, irregularly roundish, of smooth section, and distinguished from the surrounding dirty gray brain tissue, by their straw-yellow colour, and their firmer consistence. The pharyngeal mucous membrane was pale, the follicles at the root of the tongue hypertrophied. The lungs healthy, containing little blood; in the pericardium, two ounces of serum; the heart of middle size, flaccid, the valves thickened; the spleen three inches long; the liver small, soft, capsule smooth; kidneys of middle size, their capsules in places easily separable. Under the microscope, both the softened parts of the brain and the harder nodules displayed granule cells, heaps of detritus, debris of nerve-fibrils, exudation, and fat globules, but no trace of newly-formed connecting tissue.

While syphilis of the brain is usually among the last effects of the disease, in the above case it occurred suddenly two months and a half after infection, without the liver, spleen, kidneys, or periosteum being first affected; and when of the bones only the vitreous table of the frontal and the parietals was slightly involved.

ART. 32.—*On the Pathology of Hydrophobia.*

By DR. T. C. SHINKWIN.

(*Dublin Medical Press*, May, 1865.)

In a course of lectures on hydrophobia, published by Dr. T. C. Shinkwin, from the manuscript notes of the late Dr. T. S. Holland, of Cork, the following conclusions are given:—1. No one of the morbid appearances that are stated to have occurred in autopsies

made on persons who died of hydrophobia, not all taken collectively, could produce the symptoms essential to that disease, and that it presents phenomena for which none of these pathological changes can account.   2. Hydrophobia can proceed to a fatal termination without leaving in the dead body any trace of diseased change. 3. All the pathological appearances hitherto recorded must be considered as secondary or accidental lesions, to none of which can be assigned the place of *the proximate cause*, which is still unknown. 4. From a consideration of the sudden, interrupted, intense, and rapidly fatal character of the symptoms, it appears highly probable that as the blood is the most generally diffused and rapidly circulating medium, it is the receiver of and agent through which the nervous system is acted on by the poison and excited by it to produce the symptoms characteristic of hydrophobia.   5. Presuming the correctness of the last conclusion, it follows from it that treatment should be directed to remove the altered condition of the blood, and that attention should in all future autopsies be directed to discover the physical, chemical, and microscopical changes occurring in it and in the nervous system.   6. If it be necessary to give this disease a nosological order, it should be placed among a series of affections that may be included under the general term of toxo-sanguineo-nervous diseases.

ART. 33.—*On a New Remedial Agent in the Treatment of Insanity and other Diseases.*

By S. NEWINGTON, M.R.C.P. Lond. and B.A. Oxon.

(*Lancet,* June 10, 1865.)

The following is an account of a remedy which, after several experiments, Dr. Newington has found to be most useful in the treatment of insanity.   It is a remedy which appears to him to afford a powerful and valuable means of withdrawing the blood from any diseased organ to which there is an abnormal determination ; and, at any rate, it is often most efficient in subduing the excitement of mania and in inducing sleep.

" It is now known," he says, " that during sleep the quantity of blood in the brain is less than during wakefulness, and that the active circulation of much blood through the brain is incompatible with healthy sleep.   When the cerebral functions are disordered from excess of activity, mental anxiety, or other cause, there is a determination of blood to the brain, sleeplessness ensues, and the effect in its turn becomes the cause of further mischief.   Maniacal patients have been frequently brought to me who have been for six or seven days without sleep, and when repeated doses of morphia and antimony have proved worse than useless.   Indeed, the frequent disappointments from the administration of narcotic drugs during an experience of twenty-two years in the treatment of insanity have

led me to try various experiments for the purpose of obtaining some simpler and more certain method of calming excitement and producing sleep.

" While staying at Matlock Bath, I was induced to try the effects of being wrapped up in cloths steeped in mustard and water, and applied to the whole legs and to the lower part of the abdomen. After the removal of a wet towel which had been applied round the head and was very uncomfortable, I began to experience the most soothing effects, and gradually passed into a dreamy semi-conscious state, which lasted during the half hour I was under treatment. On getting up, I felt very lively and joyous, the liveliness lasting the whole day ; and for nearly twenty-four hours there remained a pleasant tingling sensation in the legs, which were affected in no other way than by redness. It occurred to me at once that this kind of application might be very serviceable in certain cases of insanity, and immediately on my return home I set about making experiments for the purpose of testing its value. The first experiment was upon myself.

" On retiring to rest I ordered a large basin of linseed-meal and mustard (ten parts of the former to one of the latter) to be made into a paste, and spread upon a sheet of brown paper sufficiently large to cover the whole abdomen, a piece of muslin being interposed to keep the skin clean. In a short time I fell asleep, and was conscious of nothing till eight in the morning, when I was partially roused by persons about me ; but I was unable to speak or move. One of my medical assistants was thereupon sent for, and he pronounced me in a state of stupor from some narcotic. Though I was unable to speak, I heard the whole of the conversation, and was in a dreamy semi-conscious state. On the administration of some stimulant I presently recovered.

" Another form in which I use the mustard is this :—Two handfuls of crude mustard are tied in a cloth and placed in hot water, then squeezed in the hand until the strength of the mustard has been extracted. A thick towel, long enough to reach round the loins, is then wrung out of this infusion, wrapped round the body, and covered with a large piece of macintosh. In one case a patient suffering from acute mania, who was restless, sleepless, and refused food, was thus treated with the greatest benefit. Before the application the pulse was 108, but after two hours of this treatment it had fallen to 60 in the minute, and the patient was in a quiet semi-conscious state. Afterwards he took his food regularly, and in a short time left, perfectly recovered.

" A third form in which this derivative treatment may be applied is as a mustard bath : in other words, an ordinary warm bath, into which have been thrown five or six handfuls of crude mustard. In some cases the deep hip-bath only may be used ; but in severe cases of mania the whole body of the patient, with the exception of the head, should be placed in the bath. A lady so treated, who had during the last year had four attacks of violent mania, each lasting for five or six weeks, has now for twenty-two weeks had no further attack, although the symptoms usually forerunning the seizure have on

several occasions occurred ; the mustard bath appears to have warded off the recurrence of the excitement.　In this case the bath was used once every twelve hours, for half an hour at a time, during a period of ten weeks ; so that the skin was kept in a constant state of redness.　It may be hoped that the habit of diseased action has now been broken, and that this patient, after due probation, may be discharged as recovered.

" Mr. W—— was brought to me in a strait-waistcoat, and as many as six people had been, it was said, necessary to control him before his arrival at Ticehurst.　Notwithstanding repeated doses of opium, he had not slept for six days and nights ; and through the night after his admission he was excited, restless, and talkative.　On the following night he was placed in a mustard bath for half an hour, so that he was perfectly red on being taken out.　During the next eight days he had six of these baths, and at the end of a fortnight after admission returned home on trial.

" A lady who, notwithstanding repeated doses of morphia, had not slept for seven days and nights, was admitted in a state of mania, extremely incoherent and excited.　After being in the mustard bath for half an hour she became calm and comparatively rational, and expressed herself as feeling much more comfortable. She was then wrapped up in a blanket and put to bed, where she soon fell into a sleep that lasted for seven hours ; and in the morning she awoke free from excitement.　The treatment was continued for six nights, and no further excitement occurred, although, as she had been insane for two years, her mind remained unsound.

" These instances, with others that I might quote, suffice to prove that in the proper use of these derivative measures we have a valuable remedial agency in the treatment of insanity.　As nature, aiming to restore the nervous element of the brain wasted by the day's labour, diminishes the activity of the circulation through it, and allows the process of repair to go quietly on, so we, imitating nature, strive in this treatment of insanity to withdraw the excess of blood from the disordered brain, and thus to favour the restoration of the natural equilibrium and the return of healthy function. And as when a morbid action continues for some time a *habit* of it is as apt to be formed, and the habit to become a ' second nature,' so, on the other hand, whenever the morbid activity is interrupted, the tendency to revert to its sound type, which exists in all organic elements, fails not to assert itself, and, if sufficient time be allowed, to restore the normal function.　We perceive, then, how exceedingly important it is to produce natural sleep in the earlier stages of insanity.

" In using the mustard bath, it is necessary to protect the privates with a folded dry towel ; and it is, of course, desirable to have the bath placed near the bed, so that the patient may pass directly from it into his bed.　If a little constraint is required on the first occasion of its use, it will rarely be found necessary on any subsequent occasion."

Art. 34.—*Connexion of the Presence of Tænia with Paraplegia and Epilepsy.*

By J. G. M'Kendrick, M.D. Aberdeen.

(*Lancet*, September, 1865.)

Dr. M'Kendrick relates the following cases :—

Case 1.—*Reflex paraplegia : outside excitation arising from the presence of a tænia in the intestine ; expulsion and immediate recovery.*

Mary L——, aged twenty-nine, married, and having a family of three children, residing in Whitechapel, was admitted a patient of the Eastern Dispensary on the 28th of March, 1865, suffering from pain in the head and symptoms of dyspepsia. She had enjoyed good health till she gave birth to her youngest child, which is now about seven months old ; but from that time she had frequent attacks of headache, vertigo, pain in the abdomen, and weakness of the limbs. A mixture was ordered, containing bicarbonate of potash and aromatic spirit of ammonia, but she experienced very little benefit from its use. For some time she had noticed that the weakness of her limbs was increasing, and about the 10th of May she found herself unable either to stand or walk. I was requested to see her at home. The paralysis was incomplete. She could neither stand nor walk without being supported on both sides, and when in bed she could roll her limbs from side to side, but she was unable to flex any of the joints. She suffered no pain, and felt no tenderness on pressure or percussion in the spinal region. She had no feeling of constriction in the abdomen, as if a cord were tied tightly round the body. Both the bladder and the rectum were entirely under her control. The urine was slightly acid. There was no formication or pricking, or any other disagreeable sensation in any part of the body. The loss of power in the two limbs was, so far as I could ascertain, equal in degree. There was no loss of sensation in either, nor was the temperature different. On severely pinching the limb, or applying alternately sponges dipped in hot and cold water, I observed slight twitchings in the flexor muscles, but there were no twitchings or startings without this excitation. The bowels were much disordered, and the tongue presented much the same appearance as it usually does in scarlatina. I discovered, quite accidentally, that for several months the patient had been in the habit of passing portions of tapeworm ; and from the anomalous nature of the symptoms, and the difficulty of assigning to them an efficient cause, unless it were the presence of tæniæ, I thought it proper practice to expel the tæniæ, and observe the result. This was accomplished by a drachm-and-a-half dose of the oil of male fern, and a tænia of the species *medio-canellata* was expelled next morning. It measured very nearly twenty-two feet in length, and was composed of about 600 segments, of which about 450 were apparently sexually mature (proglottides). I was fortunate enough, also, to find the head—easily distinguished from that of *tænia solium* by its truncated appearance at the crown, and by the absence of a proboscis or rostellum and a double circlet of hooks. In four days after the expulsion of the tænia the patient had complete power over her limbs, and most of the dyspeptic symptoms had disappeared.

Case 2.—*Epileptiform convulsions occurring in a middle-aged woman, and probably caused by tæniæ in the intestine : expulsion of two tæniæ, and no return of convulsions during a period of five months.*

Sarah E——, aged thirty-seven, married, and the mother of eight children, of whom the youngest was three years of age, residing in Somerset-

street, became a patient of the Eastern Dispensary in December, 1864. She said she was subject to "fits." The first of these occurred in the month of August, 1864, and they had recurred many times since, the period of time between the attacks having gradually become shorter until she had an attack every few days. She had not the appearance of an epileptic, wearing none of that dull, heavy, stupid expression which is so characteristic of epileptics. The convulsions came on suddenly, but she uttered no cry, nor was the gurgling sound in the throat and the stertorous breathing so well marked as is usual in cases of true epilepsy. She was unconscious; the eyes were open, and the pupils moderately dilated. The convulsive movements of the limbs were very violent, and there was a tendency to opisthotonos at intervals. The fit lasted usually about half an hour, and during the next two hours or so she was very dull and stupid, and evidently had no recollection of the fit. She stated, when I interrogated her on the subject, that when she recovered consciousness she found her mind occupied with the same thought with which it was occupied immediately before the "fit," and she had no consciousness of an interval having occurred between the two thoughts. This observation is of some importance psychologically. Between the fits her general health was good, but she had taken medical advice regarding the fits. The menses were regular in their occurrence and amount, and she complained of no disorder of the generative system. She said she had often passed portions of tapeworm. After a dose of two drachms of the oil of male fern, she expelled a large quantity of fragments of tapeworm. Many of those fragments consisted only of a single segment, many of a few segments, and several contained many segments, and were above three feet in length. They were evidently portions of two or more tæniæ. The compound infusion of gentian was prescribed in doses of one ounce three times a day during the next fortnight, and in that period of time she had only one attack of convulsions, and this attack was stated not to have been so severe as many of the previous ones. At the end of the fortnight a second dose of the anthelmintic was administered, and she again expelled numerous fragments, one of them being nearly six yards in length. She continued to take the bitter mixture until the end of March, at which time she was discharged from the institution. From the middle of January to the end of May, when I last saw her, she had not had another convulsive seizure.

Art. 35.—*On the Treatment of Certain Forms of Paralysis by Galvanization and Faradization.*

By Julius Althaus, M.D., M.R.C.P. Lond., Physician to the Royal Infirmary for Diseases of the Chest.

(*Lancet*, August, 1865.)

Dr. Althaus, in a series of observations on this subject, offers the following remarks on the physiological and therapeutical effects of the induced and continuous currents :—

" The physical relations and the chemical and physiological effects of the continuous and the interrupted current are widely different from one another; and it may therefore be inferred that each one of them has also its own special sphere of action in therapeutics.

The continuous current, which is produced by the chemical action of two heterogeneous conducting bodies, moves always in the same direction, and has considerable chemical effects; as it easily decomposes water and saline solutions, oxygen and acids being attracted to the positive pole, while hydrogen and alkalies accumulate at the negative pole. Induction currents, on the contrary, are of instantaneous duration, move alternately in contrary directions, and have therefore only a slight chemical action; for, as each wire serves alternately as positive and negative pole, their chemical effects are, in a great measure, neutralized as soon as produced. As regards the difference in the physiological action of the two currents, it may be laid down as a fundamental principle, that *the induced current only acts on the parts directly submitted to its influence, unless a very high power be used; while the continuous current, by reflex action, also affects distant parts, and more especially the centres of the nervous system.* As this is a new proposition, it will be necessary to adduce proofs in order to establish its correctness.

"If the induced current is, by moistened conductors, applied to the face, it causes a peculiar sensation and contraction of the muscles; while the continuous current, if applied in the same manner, not only causes a peculiar sensation, and a contraction of the muscles both at its commencement and its cessation, but also a vivid flash of light; and if the current be one of some force, even sickness, giddiness, and fainting may ensue. These latter phenomena, which are caused at whatever part of the face or nape of the neck the current may have been applied, can only be explained by assuming the physiological transmission of part of the current to the encephalon. There are also facts to prove that the continuous current has a physiological action on the spinal cord and the sympathetic nerve, if applied to the skin of the back by moistened conductors. Thus we may often cause the iris to contract by directing a current of large quantity to the lower cervical and upper dorsal vertebræ, showing that there is physiological transmission of part of the current to the cilio-spinal region of the cord and the corresponding ganglia of the sympathetic, which preside over the functions of the iris. Again, by applying a continuous current to the lumbar portion of the spine, we may cause a glow in the legs and feet, without any direct application to these latter, showing that the influence on animal temperature, which M. Claude Bernard and Dr. Brown-Séquard have proved to belong to the sympathetic, is brought into play by the application of the continuous current. These facts would appear sufficient to establish the correctness of the proposition with which I started—viz., that the continuous current is capable of influencing, by reflex action, the centres of the nervous system, both cerebro-spinal and sympathetic; while the induced or interrupted current has no distant, but only local and immediate effects.

" The therapeutical experience I have gained in various forms of paralysis with both kinds of current, entirely coincides with these physiological premises. It is to the effect that the interrupted current proves useful in local paralysis, due to injury of the motor

nerves and muscles, to pressure, to rheumatic effusions, poisoning by lead, &c., but can have a beneficial influence in paralysis from diseases of the nervous centres only after the original lesion has subsided, and in reflex paralysis only after the irritation in the spinal cord has passed off. The continuous current, on the other hand, proves efficient in certain forms of paralysis due to affections of the nervous centres, more especially in those cases which are caused by effusion in the spinal canal and incipient softening of the cord, as well as in most instances of reflex paralysis where irritation of the cord is still present."

Art. 36.—*On the Pathology of Tetanus.*

By Mr. J. Lockhart Clarke, F.R.S.

(*Lancet*, August, 1865.)

In a paper communicated to the Medico-Chirurgical Society, Mr. Clarke describes the condition of the spinal cord in six cases of tetanus. In every one of these there was not only more or less congestion of the blood-vessels, but there were also definite, and frequently extensive, lesions of structure, such as have never yet been discovered. These lesions consisted of disintegrations of tissue in different stages of progress, from a state of mere softening to that of perfect fluidity, and were accompanied by certain exudations and extensive effusions of blood. They were found chiefly in the grey substance, which, moreover, was in many places strangely altered in shape—unsymmetrical on the opposite sides, or partially fused with the adjacent white column in a common softened mass. Although lesions of this kind existed, in one form or other, in every region of the cord, they were absent in some places ; nor did they ever, for long together, maintain the same shape, size, or appearance, but were constantly and alternately increasing, diminishing, or disappearing, at short but variable intervals. These lesions in tetanus are precisely similar in character to those which the author has discovered in the spinal cords of many ordinary cases of paralysis ; and on comparing together the lesions and symptoms of both kinds of diseases, he finds good ground for the support of the following conclusions :—1st. That the lesions are either not present, or are present only in a slight degree, in those cases of tetanus which recover. 2nd. That they are not the effects of the great functional activity of the cord, manifested in the violent spasms, but are the effects of a morbid state of the bloodvessels. 3rd. That they are not alone the causes of the tetanic spasm. 4th. That the tetanic spasms depend on two separate causes—firstly, on a morbidly excitable condition of the grey substance of the cord, induced by the hyperæmic and morbid state of its bloodvessels, propagated from the injured nerves and resulting in exudations and disintegrations of tissue ; and, secondly, on irritation propagated and spread through the morbidly excitable cord from the same source—from the periphery, by the diseased nerves.

Art. 37.—On Infantile Paralysis.

By Mr. William Adams.

(Medical Times and Gazette, May, 1865.)

In a paper read before the Harveian Society of London, Mr. Adams states that he had been able to restore the power of locomotion where it had been supposed to have been irretrievably lost. Infantile paralysis comes on frequently during teething, at the age of one or two years. Both legs or both arms are paralysed suddenly or in the course of a few hours, or only one limb may be affected. Sir B. Brodie used to say that unless this paralysis is naturally recovered from in six months, it is hopeless. In three to six months there is usually the greatest amount of recovery, the rectus muscle of the thigh often being the last to recover. As to the pathology of the disease, Mr. Adams confessed that he knew nothing of it. The most recent German writers on the subject attribute it entirely to the muscles; and Rilliet and Barthez recorded only two post-mortem examinations. In these, as well as in the one made by Mr. Adams, no appearance could be made out to account for the disease, and children do not die of it. Consequently, the cause of it is not investigated. If practitioners were but aware of this fact, they would probably make the necessary examinations. It must be remarked that natural recovery of the muscular powers may progress from six months up to three or four years, during which time a series of events takes place—namely, contraction of all the joints. Mr. Wilkinson had lately brought him a child with great contraction of the knee-joints. The muscles around the hip-joints are usually the first to recover. A child was sent him from Clifton, of the age of from six to seven, which had never stood. It had contraction of the joints, arms, legs, and trunk, and Mr. Adams was able to promise the parents of the child that it should walk in three months. Dr. Brown-Séquard had requested Mr. Adams to see a young lady, aged seven years, in consequence of paralysis of both legs, and in three months this child was able to walk with steel supports. If a child could use the psoas and iliacus muscles, it could be made to walk, and this was the practical test. It should be laid down on the floor, and if it can draw up its knees success is certain. With regard to treatment in the early stages, he had known counter-irritation down the spine used, but the chances were that no treatment would do much good. When the child has paralysis with flaccid muscles, rubbing and warm clothing are of use. Galvanism of both legs under water is also useful, notwithstanding that many physicians and surgeons disparaged this remedy, and said it had been tried and found to be valueless. He (Mr. Adams) used two tin boots, filled with warm water, in each of which the little patient's foot is placed, and galvanism is applied. Dr. Gull had written some valuable papers on galvanism in the " Guy's Hospital Reports." The nutrition of the limb must, if possible, be main-

tained. Dr. Jounod's boot for exhausting the air was once in much repute, and is now, perhaps, too much neglected. A paralytic patient of his could always warm the leg in ten minutes by this apparatus; the boot has no bad effects, but is liable to get out of order. It is, doubtless, a most useful remedy in many cases of paralysis. In some cases of infantile paralysis, the rectus muscle remains paralysed for life, and the leg swings; but this can be compensated for by mechanical means, so as to enable the child to walk.

ART. 38.—*The Ophthalmoscope in the Diagnosis of Hydrocephalus.*

By M. BOUCHUT.

M. Bouchut has read a paper at the Academy of Sciences in which he gives an account of the application of the ophthalmoscope to the diagnosis of chronic hydrocephalus in young children. How difficult this often is prior to the head having attained a size capable of removing all doubts, is familiar to all; while even enlargement of the head itself may arise from another affection accompanied with convulsions, and often confounded with commencing hydrocephalus, viz., rickets confined to the cranium. Cephalic auscultation having proved insufficient for diagnosis, M. Bouchut resolved to have recourse to the ophthalmoscope, as in chronic hydrocephalus the circulation and nutrition of the eye undergo notable modifications in consequence of the compression produced by the presence of fluid. In proportion as the fluid increases in quantity, the following changes are observable :—1, greater vascularity of the papilla and retina, together with dilatation of the veins, which retain their habitual colour; 2, an increase in the number of the veins of the retina; 3, partial or complete serous infiltration of the papilla; 4, atrophy of the retina and its vessels; 5, more or less considerable, and sometimes complete, atrophy of the optic nerve. These lesions vary with the duration of the disease and the amount of effusion, and are the consequence either of compression of the sinuses preventing the blood returning into the cavernous sinus, giving rise to the œdema of the retina, or of compression of the optic nerves within the cranium. These lesions, with the exception of œdema of the papilla, do not prevent the child from distinguishing objects. The most important fact, however, is that these changes are not observable in rickets. In twenty-two children, from three to five years of age, examined by M. Bouchut, and in whom little deformity of the body existed, while there was increased size of the head with persistence of the anterior fontenelle (some of them having suffered from convulsions, and others not having exhibited any symptom referable to disorder of the nervous system), no change in the papilla, or disorder of the venous circulation of the retina, could be detected.

ART. 39.—*On the Treatment of Graves' Disease by Gal-
vanisation of the Great Sympathetic Nerve.*

By Dr. BENEDICKT, &c.

(*Gaz. Hebdom.*, March, 1865 ; *New York Medical Journal*, Sept. 1865.)

Dr. Benedickt has treated two cases of this very singular affection by the means above mentioned. Both were considerably alleviated, but the patients left the hospital before the treatment was concluded. Acting upon the idea that Graves' disease was dependent upon an affection of the sympathetic nerve, a writer in the *New York Medical Journal* states that he has employed galvanism in its treatment in three cases. In the first improvement was at first manifested, but it was not permanent. The other two were entirely cured, after three or four applications of the galvanic current. In both the latter the constant current was used.

ART. 40.—*Hysterical Anæsthesia and Ataxia.*

By M. LASÈGUE.

(*Archives Générales de Méd.*, and *Gaz. Méd. de Paris*, Avril, 1865.)

M. Lasègue relates and comments on a case in the Hôpital Necker —a girl who, at the age of eighteen, was seized with hysteria, and afterwards with catalepsy. The cataleptic attacks recurred every two or three days at uncertain intervals, and lasted, on an average, two or three hours each. The sleep was calm, and difficult to be distinguished from physiological sleep. M. Lasègue applied to the patient electricity, pinching, pricking, and other means of irritation, without producing the least effect. All the muscles appeared to be under the cataleptic influence, except those of the face ; the jaws were fixed, but the lips and eyelids resumed their normal position when the hands were removed after separating them. The patient had anæsthesia of the limbs and of part of the body ; the face, skull, and a part of the neck retained some sensibility. The anæsthesia was not only cutaneous, but deep-seated ; needles could be plunged deeply into the patient without producing the least evidence of pain. M. Lasègue availed himself of the opportunity of investigating the influence of this state on the muscular action, and arrived at the following results. When the patient's eyes were bandaged, she could move the muscles lying under the parts where sensation remained, but not those lying under the anæsthetic parts of the body. Thus she moved the head, neck, and body ; but the limbs were immovable, and, when put into any position, they remained there without producing the least fatigue, as if the patient were in a partially cataleptic state. This phenomenon was observed both in the lower and in the upper limbs ; and yet the patient walked with-

out looking at her feet, and with her eyes fixed on the ceiling. When her eyes were shut, she could not raise her hand to her head; but, if she had the fingers applied on a sensitive point of this region, she could, with some hesitation, perform definite movements. With her eyes open, the patient could, even with some expertness, perform the most delicate movements—provided that she never raised her eyes. When her sight was directed towards a distant object, her movements were restrained, but less so than when her eyes were closed. If obliged to look at an object within reach she could not extend her hand to it, unless she could see her arm; but this became possible if she could distinguish the movements of the arm through her clothes.

M. Lasègue makes a number of interesting observations, and concludes as follows. The sense of muscular activity is more complex than appears at first. It is composed of elements furnished by sight, by touch, and by the slow and gradual education of movements. Each movement in itself represents a succession of phenomena, capable of being minutely analysed, from the time when motion has been determined on to the time when the object has been accomplished; and from this chain, apparently indissoluble, one or more links may be wanting. In hysterical cataleptics, the rigidity of the muscular organism, the disappearance of volition, the intervention of the sight and of touch, are so many elements, diversely modified according to circumstances, which change the results produced.

ART. 41.—*On Neuralgia of the Tongue.*

By Dr. NEFFE.

(*Wiener Med. Zeitung,* and *Gaz. Méd de Paris,* July, 1865.)

A man, aged thirty, was suddenly seized with violent pain in the posterior half of the left side of the mouth, about opposite the last molar tooth. From this part the pain extended to the front of the tongue; it prevented him from sleeping at night. Mastication was difficult and painful; the tongue was covered with a yellowish coat; the breath was foetid; the patient had lost his appetite, and had headache and constipation. The pain afterwards extended downwards towards the submaxillary gland, and the gums became painful. Dr. Neffe recognised the case as one of neuralgia of the lingual nerve, the pain being most intense at the point where the nerve is most superficial. Emollient and narcotic applications, and laudanum and sulphate of atropine introduced into the ear, were all without result. Dr. Neffe then applied faradization, placing one pole in the meatus of the ear, which was filled with water, and the other on the mastoid process. The pain was at once relieved; it afterwards, however, returned, but with less intensity. A few repetitions of the remedy produced entire removal of the pain.

Art. 42.—*On Impaired Nervous Power, from Alterations in the Quantity of the Blood circulating in the Brain.*

By George Hare Philipson, M.A., M.B. Cantab., M.R.C.P., Physician to the Newcastle-upon-Tyne Dispensary and Fever Hospital, &c.

(*British Medical Journal*, May, 1865.)

Dr. Philipson discusses the various conditions productive of alterations in the quantity of the blood circulating in the brain, the effects arising therefrom being especially referred to. His conclusions are embodied in the following propositions :—

An increase in the quantity of blood circulating in the brain, is alone adequate to produce impairment of its various functions.

The ulterior effects of the increase are much more serious than those of the increase itself.

A sudden diminution in the amount of blood distributed to the brain, is followed by complete paralysis.

Hemiplegia so produced closely resembles hæmorrhage into, or acute softening of the brain-tissue, not only in symptoms, but in power to destroy life.

The two last propositions are based on the subjoined observations :—

A decrease in the quantity of blood circulating in the brain may arise from a sudden and large loss of blood, or from an interruption to the current in the arteries that supply or are distributed to the brain.

In acute anæmia, from any sudden and large hæmorrhage, the amount of blood passing through the brain necessarily must suffer diminution, the proportion of the composite elements being in no way changed. The giddiness, loss of consciousness, perhaps dreadfully prolonged, the momentary suspension of respiration, resumed with deep sighing, sufficiently mark the action upon the nervous system.

The blood may coagulate within a healthy or a diseased vessel. When within a healthy vessel, it does so spontaneously and during life. Rheumatism, syphilis, the puerperal state, and debility in any way produced, appear to render the fibrine more liable to separate and form a clot. Such cases are uncommon. The following one is a remarkable example.

T. B——, a joiner, aged forty-three, on the morning of March 2nd, 1861, while at work fell to the ground ; when lifted by his fellow-workmen he was unconscious ; two hours afterwards was profoundly insensible. The mouth was drawn to the right ; sensation and motion were abolished in the left arm and leg; when raised they fell as dead weights ; reflex action could not be excited ; the intestinal contents were passed involuntarily. He never regained consciousness, and died twenty-two hours after the seizure.

At the autopsy, the right internal carotid artery within the

cranium, together with its branches, were distended with a coagulum, which even extended into the branches of the ophthalmic. The vessels were completely filled. When cut across, the circumference of the clot was firm, the centre soft, most like ordinary clotted blood. It was divided at several parts with the same result. The lining of the vessels was of a natural colour and quite smooth. The brain was throughout of ordinary consistence. The ventricles contained the usual quantity of serosity. The valves of the heart were healthy.

It was conjectured during life that blood had suddenly become effused into the right hemisphere of the brain. At the examination a different condition was revealed—an explanation of the symptoms. The character of the clot was peculiar, and clearly pointed to its formation some time before death. In all probability the interior of the vessels was first covered with a layer of fibrine, and upon this, according to the rapidity with which the blood-discs became entangled, a coagulum was formed, enlarging until the vessels were ultimately blocked up.

In arteries inflamed, the blood coagulates. The clot is often firmly adherent, and of a uniform colour. The heart is moderately distended; the calibre slightly diminished. The external coat is thickened from exudation into its interstices; the internal softened, and devoid of its natural polish. In some bodily conditions, a lowness of activity naturally exists, joined with general impairment of the nutritive power. In various organs and tissues the proper structure is replaced by oily particles—plates of cholesterine and calcareous particles. In the arteries, this change is not uncommon in the contractile tissue of the middle coat. The vessels then lose their power of contractility, are dilated rather than contracted. The calcareous particles not unfrequently project into the current, sometimes becoming free, from removal of the epithelial layer by absorption, and thus inviting foundations are formed for the raising of a coagulum.

The blood may coagulate upon some substance derived from a distance, composed either of the constituents of the blood or the products of some morbid process. This condition, with the appellation of "embolon," was described some few years ago near the same time, by Virchow, in Germany, and the much lamented Kirkes, in this country. They stated that fibrinous fragments or vegetations adherent to the interior of the great vessels, the valves or inner surface of the heart, by some sudden excitement of the circulation, become detached, and swept on in the circulation until arrested by a vessel too small for them to move in. The vessel becomes blocked by a clot to the angle of branching, where the circulation is still going on.

The embolus may be formed in various ways. It may be composed simply of a coagulum, formed upon calcareous spiculæ, projecting into the interior of one of the great vessels, or an atheromatous patch, where the epithelial membrane has been removed. It may be formed of fibrinous patches washed off from the masses attached or interwoven among the chordæ tendineæ and columnæ

carneæ of the left ventricle of the heart. It may be constituted by a vegetation, detached from one of the valves of the heart, the result of previous endocarditis. The vegetations are usually attached to the free border of the valves, and to those of the left side in preference to the right. They are generally small in size, and pass into the cerebral arteries and their branches; the middle cerebral more often than the anterior or posterior. The fibrinous particles are of good size, and frequently lodge in the internal carotid artery.

The resting place of the embolus is principally determined by its size, the position of the body at the time the separation has occurred, the velocity of the circulation, and the angles formed by divergent branches. When an artery so obstructed is examined, it will appear as if distended with artificial injection, the coats being quite healthy. The plug is firm, distinctly laminated, like the contents of an aneurism; in shape mostly conical, the base directed to the stream; smooth; like an ordinary clot in colour; the apex often irregular, lighter in colour, and possibly identical in structure with fibrinous masses or vegetations, yet undetached.

The changes that ultimately occur are chiefly influenced by the size and position of the artery obstructed. If it be the internal carotid artery, by reason of its numerous inosculations with the branches of its fellow, and of the external carotid and the subclavian, the circulation is soon restored. If the embolus and the vessel be not adherent, the force of the circulation may produce dilatation of the vessel behind the obstruction, and the blood may gradually find its way between the plug and the vessel. In this way, the circulation may be in part restored. If the clot be firmly fixed, the dilatation may increase until the vessel ruptures. This is a rare cause of hæmorrhage into the substance of the brain. The embolus may be arrested at the angle of two divergent branches, loosely waving in one, and obstructing the other. This position may be easily altered, and the obstacle may again pass into the circulation, migrate, and obstruct some other vessel. The embolus may continue fixed in position, and gradually become less by a process of disintegration and absorption, the vessel once again becoming patent. When the obstruction continues some time, the nutrition of the brain suffers. Its consistence changes; it becomes soft, pulpy, almost diffluent at places, like cream in density and appearance; the extent of the alteration corresponding closely to the place within which the branches of the obstructed artery are distributed. In fatal cases, this is the most general *post-mortem* appearance, death rarely following the immediate attack.

The symptoms are distinctive. The attack is most sudden, without premonitory warning. Consciousness is lost, after a few hours regained, disclosing partial or complete paralysis of one side. The face may be distorted, the tongue protruded to one side, the grasp diminished, and the foot trailed. Sensation is abolished, lessened, or perverted. Speech is defective in the utterance of words, and even in the expression of ideas by signs. The paralysis is on the side of the body opposite to that in which the obstruction has

occurred, thus agreeing with the distinctive character of cerebral paralysis from other causes. One side of the body may be completely paralysed, and the arterial pulsations in a part of the other be unable to be felt. Here embolism of the artery going to the part, is associated with a similar condition of an artery supplying the brain. Other internal organs in conjunction with the brain may be similarly affected; the spleen and kidneys more often than the liver. The first attack is often of short duration, succeeded by a second more lasting, it may be, of the opposite side of the body. In such the obstruction has become displaced, altered in position, and finally firmly wedged.

This condition may occur at any age. Of seven cases, three were under thirty years of age, while one was sixty-five. Four were males and three females. In every case a history of previous rheumatism was obtained, and the auscultatory evidence was clear of coexistent disease of the valves of the left side of the heart.

The treatment, immediate upon the seizure, must be directed to equalise and restore the circulation. The recumbent posture must be strictly enjoined, and all constricting articles of dress set free. Some diffusible stimulant, as brandy or ammonia, may be administered. Some caution, however, is necessary, lest the circulation be excited in too great degree, and fresh particles of the obstructing matter become washed into the current. After consciousness has been regained, if the paralysis continue, the endeavour should be to hasten the absorption of the obstruction. Upon the supposition that ammonia possesses the property of liquefying the clot of coagulated blood, this alkali may be given. Even out of the body, upon the authority of Dr. B. W. Richardson, blood serum alkalinified with ammonia possesses this property. Dr. Fletcher, of Manchester (*British Medical Journal*, April 30th, 1864), has recorded a case of embolism which recovered, ammonia having been given in frequent and large doses. The symptoms were clear and well marked. The healthy nutrition of the body must be carefully maintained, so that, however small the quantity of blood is that the brain receives, it may be as nutrient as possible. With this view, a generous diet, wine, and tonic remedies are indicated. Iron, quinine, alone or in combination with ammonia, or other approved absorbent, as the iodide or bromide of potassium, proves the most beneficial. Laxatives from time to time are necessary, and highly useful. Counter-irritation behind the ear, or upon the crown of the head, by means of cantharidine blisters or the ointment of tartarated antimony, should not be omitted.

Art. 43.—*On Functional Paresis of the Sympathetic and Vaso-Motor Nerves.*

By Dr. C. Handfield Jones, F.R.C.P., F.R.S., Physician to St. Mary's Hospital and Lecturer on Medicine.

In his Lumleian Lectures "On some points in the Pathology of Nervous Diseases," Dr. Handfield Jones has the following remarks on this subject:—

"The sympathetic and vaso-motor nerves and centres seem to be especially liable to functional paresis. In all febrile and in most inflammatory processes at some period of their course we are sure that more or less of such paresis must take place. One of the most proving instances of the occurrence of such paresis is afforded in the production of well-marked low fever by fatigue. A distinguished physician once informed me that he had suffered in this way twice, and that his condition on one occasion much resembled typhoid fever. Another gentleman has experienced, after over-exertion in walking, smart attacks of nocturnal fever and tremor. Excessive fatigue seems to have been the principal cause of a low fever attended with extreme lassitude and anorexia, which prevailed among the French troops during the revolution in 1848. Such pathological events are almost repetitions of Bernard's experiment on the whole sympathetic system, the nervous power of these centres being consumed in the motor apparatus, so that they fall into a state of temporary paresis. Without affirming that the elements of the tissues are not in some way influenced by the cessation of nervous influence, it is, I think, unquestionable that dilatation of vessels plays a considerable part in many important and common phenomena of malarious disease. The cerebral congestion of the hot stage, the enlargements of the spleen and liver, the pneumonias, and the more rare ophthalmic inflammations are evidently dependent in good measure on excessive determination of blood, produced, as we may most reasonably consider, by paralytic dilatation of the arteries leading to the part. The powerful nervine which abates or cures a neuralgia has the like effect on these vascular disorders through its toning influence on the nerves regulating the condition of the vessels. Various common cutaneous eruptions which are controlled so markedly by arsenic, eczema, impetigo, and pemphigus, are also instances of the same kind. From some enfeebling cause or other the centres ruling the vaso-motor nerves of certain districts of skin fall into a state of paresis, and straightway the part is flushed with blood, and secretion or exudation takes place according to the vital condition of the capillary walls and of the glandular cell structure. A patient at present under Dr. Sibson's care in St. Mary's Hospital, with left side hemiplegia, the result of cerebral hæmorrhage, had for several days an eruption of pemphigoid character on the palsied hand and foot, and nowhere else. A case has been related to me by

Sir R. Martin of a lady who had suffered from frontal neuralgia and malarious fever, and in whom a largish patch of redness used to appear at intervals on the right forearm, from which such an abundant moisture flowed that several handkerchiefs would be saturated in half-an-hour. Such an occurrence reminds one very much of eczema-ichorosum, a variety described by Mr. E. Wilson, in which large quantities of fluid are discharged from the congested surface. He recognises debility in some form, assimilative, nutritive or nervous, as the essential cause of eczema. Now, arsenic is scarcely inferior in its nervine properties to quinine, and it is clearly impossible to dissociate its marked efficacy in chorea and neuralgia (disorders of the cerebro-spinal system) from that which it possesses in cutaneous eruptions, menorrhagia, and chronic diarrhœa (disorders to a great degree of the vasomotor). I cannot but think that this possibility of explaining a number of separate facts by the original assumption is, as Dr. Whewell states, an argument of great weight in its favour. He says, ' If we take one class of facts only—knowing the laws which they follow—we may construct an hypothesis, or perhaps several, which may represent them; and as new circumstances are discovered we may often adjust the hypothesis so as to correspond to these also. But when the hypothesis of itself, and without adjustment for the purpose, gives us the rule and reason of a class of facts not contemplated in its construction, we have a criterion of its reality which has never yet been produced in favour of falsehood.' In correspondence with this statement, we remark that the original assumption that arsenic tends to increase and sustain failing nervous power accounts not only for its curing neuralgia, for which it might be originally framed, but also for its efficacy in chorea, ague, some skin eruptions, and menorrhagia, which are apparently very different phenomena.''

Art. 44.—*On Epileptic Hemiplegia.*

By Dr. C. HANDFIELD JONES, F.R.C.P., F.R.S., Physician to St. Mary's Hospital and Lecturer on Medicine.

(*Medical Times and Gazette*, July, 1865.)

In his Lumleian Lectures, Dr. Handfield Jones offers the subjoined remarks on this subject :—

'' The hemiplegia which ensues on attacks of epilepsy is stated by Dr. Todd to be very analogous to that which occurs in connexion with chorea. In both he thinks there exists a more or less exhausted state of brain, which is very apt to continue as one of weakened nutrition, in which the brain-tissue is more or less in the condition of white softening. According as the convolutions or the basal ganglia are most involved, we have failure of intellectual power, or paralysis. With these views of Dr. Todd my own very nearly coincide. The only point on which I lay some stress is, that in those instances where the paralysis is of short-duration, as a few hours or

a few days, it is much more reasonable to regard the cerebral sub-
stance as being in a state of exhaustion, or functional paralysis,
than of atrophic decay. Even when the paralysis is much more
prolonged, it is sometimes clear that it cannot depend on organic
change. A boy, aged eleven, has been two or three months under
my care with epileptic fits, always occurring in the morning ; after
which he has prolonged aphonia, extending once over three months,
though he was otherwise conscious and intelligent. The movements
of the tongue were perfect, so that it is most probable the aphonia
was cerebral or laryngeal. Just as it is a common event in the
epileptic drama that the patient remains after the fit, for a longer or
shorter time, in a state of coma—*i.e.*, paralysis of the hemispheres,
which cannot be ascribed to arterial spasm—so it is, I believe, with
the corpora striata in cases where the paralysis is not permanent.
The commotion induced in the encephalon by the violent nervous
disorder inflicts a temporary shock upon the nervous tissue, which
is usually more severely felt in the hemispheres than in the basal
ganglia. That this view is correct seems to me to be strongly affirmed
by the occurrence of what is called epileptic mania. In those who are
the subjects of this affection the stupor, dulness, and want of power
to collect their thoughts, which are the ordinary sequelæ of a fit,
are replaced, after a longer or shorter period of depression and
torpor, by a cerebral excitement or a furious delirium, which impels
them to commit acts of extreme violence, as suicide, homicide, or
incendiarism, of which they retain but a very dim recollection
when the state of excitement has passed away. Such a condition of
brain cannot possibly be the result of white softening, but it may
of a perturbing shock, such as I suppose to give rise to the paralysis.
There is no greater difference between these two forms of cerebral
disorder than there is between the varieties of sensory disorder
which occur in brachial neuralgia. The affected part is sometimes
very numb, sometimes extremely tender. Both states, however,
are evidently products of the same cause, and both are removed by
the same treatment. In fact, it depends very much on the *quality*
of the cerebral tissue whether its resentment of the shock expresses
itself in the form of stupor or of delirium. M. Trousseau lays
rather special stress on this influence of cerebral shock as being
largely concerned in the production of various so-called apoplectic
phenomena. His views appear to me so sound and important,
and have so much bearing on my subject, that I shall not hesitate
to quote the passage containing them:—' When a man is stricken
with cerebral hæmorrhage there is sometimes a sudden loss of con-
sciousness, and the impairment of intelligence and of motor power
lasts for several hours or several days, after which the normal con-
dition is restored, saving a slight hemiplegia, which diminishes slowly
and disappears at last after the lapse of some weeks or months. As
the primary symptoms have been almost "*foudroyants*," as between
the gravity of these first phenomena and the later disorders of intelli-
gence, sensibility, and motion, there seems to be no sufficient relation,
it is said that the cerebral hæmorrhage has been accompanied by con-
gestion ; that the congestion, an essentially transitory phenomenon,

has produced the apoplectic symptoms properly so called; that when it was resolved there remained, however, a moderate hæmorrhage, which is the cause of the persistent paralysis.' Now, Trousseau thinks the sudden unconsciousness is much more attributable to the shock which the encephalon has received than to the supposed congestion. He likens the condition to that of traumatic concussion, and proposes for it the name of *étonnement cérébrale*. In another place he cites the instances of market porters, and mountebanks who walk with their heads downwards, as proving that a considerable amount of congestion of the brain may occur without producing any injurious effects. In the cases above referred to the paresis is not quite primary; but they seem to be, nevertheless, very proving of the main point, that a nervous centre may be functionally paralysed."

ART. 45.—*A Case of Paralysis.*

By Mr. HOLTHOUSE and Dr. FINCHAM.

With Examination of the Medulla Oblongata and Spinal Cord.

By Mr. LOCKHART CLARKE, F.R.S.

(*Lancet*, July, 1865.)

CASE.—*Sudden loss of vision of the left eye, and subsequently of that of the right; followed by partial paralysis and neuralgic pains of the upper extremities, and complete paralysis of the lower. Restoration of vision, but persistence of paralysis. Death.*

Jane M——, aged seventeen (pupil-teacher), a healthy-looking and intelligent girl, was admitted as an out-patient of the Surrey Ophthalmic Hospital, under the care of Mr. Holthouse, on the 31st March, 1864, for loss of vision of the left eye of one week's duration. The only cause she could assign for it was overwork; being engaged, in addition to her other duties, in preparing for an examination; though she stated that she had often worked as hard before without any appreciable ill effects.

The pupil was more dilated than that of the right eye, and its movements were sluggish under variations of light, but the movements of the eyeball and eyelids were perfect; there was no distortion, redness, or pain; the tension of the globe was normal; she had a good perception of light, and could distinguish large shadows. With the right eye vision was perfect, and she could read No. 18 at 20'.

Ophthalmoscopic appearances.—Left eye: Humours clear; contour of the optic disc very ill-defined; course of the vessels not interrupted. Right eye normal.

Studies to be suspended; left eye covered with a compress; a blister applied behind left ear; and to have aloes-and-myrrh pills, ten grains every night.

April 4th.—No alteration. Ordered one drachm of solution of bichloride of mercury with one ounce of solution of cinchona three times a day.

7th.—Can distinguish the window-frame and objects placed towards the outer side of the eye.

11th.—Sight improving; can count fingers placed within a few inches of

the eye.　Complains of pain across the shoulders, shooting down both arms. Pulse 110.　Repeat blister to the neck.

18th.—The blister rose well, but the pain in the arms continues.　Pulse 120, feeble.　Sight slowly returning in the left eye, but going in the right. Ordered quinine-and-iron mixture, one ounce three times a day ; aloes-and-myrrh pill, five grains on alternate nights.

May 2nd.—General condition much the same ; pulse, 120, and feeble. She occasionally rambles at night, and gets out of bed.　There is less pain across the shoulders and down the arms, but the grasping power of the hands is diminished.　On the 29th ult. she found the sight of her right eye very defective, and in the evening of the following day it had entirely gone ; at present she can barely distinguish light from darkness.　Left eye still improving.

Ophthalmoscopic appearances.—Right eye : Intense injection of retina and optic disc ; the contour of the latter can, however, be clearly made out. Left eye : Optic disc bright and whitish, and its contour now well defined.

Ordered, disulphate of quinine and sulphate of iron, of each two grains, and an ounce of camphor mixture, thrice a day.

10th.—No material alteration was observed either in the general or local symptoms till to-day, when the vision of both eyes was so far improved that she could read No. 20 at 9″ with the left eye, and could see the type, though not make out any letters, with the right.　The pulse was still feeble, and ranged from 110 to 130.

26th.—Pulse 120 and stronger ; can make out a word or two of No. 19 with each eye.　To continue the medicine.

June 2nd.—Vision improving, but the paralytic symptoms increasing. The legs are now weak, so that she can with difficulty walk to the hospital. To have a liniment, consisting of three drachms of olive oil and one drachm of croton oil, rubbed over the upper half of the spine till pustules appear.

14th.—The paralytic symptoms continued to increase, and to-day she was admitted into the Westminster Hospital, under the care of Dr. Fincham, quite unable to walk or even support herself, though able to move her legs tremulously in obedience to volition.　She has also perfect command over the bladder and rectum.

20th.—She has lost the power of moving her legs, and also of expelling the urine, which requires to be drawn off by catheter.　This morning sensibility left the lower part of her body below the umbilicus.

21st.—Complains of severe pain at the back of the head and neck, which is greatly aggravated when coughing ; also in the centre of the dorsal region when raised in bed.

22nd.—Sensation lost up to the level of the ensiform cartilage, but not in the arms.　The pain at the back of the head, neck, and spine not felt except on coughing and movement ; breathing hurried ; pulse 136 and very feeble ; can swallow liquids, but solids with difficulty ; motions pass involuntarily ; no reflex movements ; hands cold and purplish ; less tremor in the upper extremities.　Acetum cantharidis applied to the spine.

23rd.—Slept from three A.M. to six.　Blister has risen well, and sensation has returned for three or four seconds below the ensiform cartilage, with hyperæsthesia.　The hands remain cold, though under the bedclothes, and sensation in them is perfect.　She has no longer any pain in turning her head from side to side ; dyspnœa and hurried breathing ; pulse 140, weak ; is now quite unable to swallow solid food, and with difficulty liquids.

24th.—Slept heavily all through the night, and when roused to take her food was slightly delirious ; dyspnœa very urgent at times ; dysphagia greater than it was yesterday.　The line of insensibility higher than it was

yesterday ; it now takes the course of the ribs. No hyperæsthesia ; cough very distressing ; frequent twitching of the muscles of the face.

25th.—A bed-sore has made its appearance over the sacrum.

27th.—Dyspnœa increased. Vision, which had gradually improved up to this date, became suddenly perfect in both eyes.

28th.—The dyspnœa and exhaustion continued to increase, and she died at half-past four P.M.

Examination of the Medulla Oblongata and Spinal Cord.
By Mr. Lockhart Clarke.

" Neither the optic thalami, the corpora striata, nor the corpora quadrigemina were examined by myself ; but they are said to have been quite healthy. In the pons Varolii and medulla oblongata there was nothing at all remarkable ; nor was there anything unusual in the external appearance of the cervical portion of the spinal cord, except that the cervical enlargement exceeded the ordinary size. At about the third or fourth dorsal nerves the cord was softer than natural, and the softening increased in descending, especially from the seventh dorsal nerves and along the lumbar enlargement. For the same extent the veins on the posterior surface were very much distended and tortuous. On the same surface the white substance was raised into numerous softened eminences of considerable size, and of an oval or rounded form, which gave it a kind of blistered or nodulated aspect. A nearly similar appearance was observed on the *anterior* surface of the cord ; but the nodules or eminences were smaller and more numerous. The lateral columns, likewise, were thickly studded with an immense number of very small nodules, in contact with each other, and presenting almost the appearance of a deposit. At the lower part of the lumbar enlargement, or rather at the conus medullaris, on separating the nerves of the cauda equina, I found that they enclosed a large mass of white pulpy substance, of about the consistence of thick cream, and streaked here and there with red. At first sight it seemed as if the whole thickness of the cord at this place had been reduced to this pulpy mass ; but on carefully scraping away the latter, I was surprised to find the cord itself presenting nearly its natural appearance both in size and shape. The only remarkable alteration appreciable by the naked eye was in the anterior column of the left side, where there was an oval, reddish, and bare surface, about the size of a pea, and out of which had oozed the softened substance which enveloped the cord. On examining this substance under the microscope, it was found to consist of broken and disintegrated nerve-fibres, interspersed with a multitude of granules and numerous granular (exudation) corpuscles, mixed with blood-globules, either isolated or in groups. There were no traces whatever of pus-corpuscles. The substance on the surface of the wound or bare space had precisely the same composition, but contained a larger proportion of blood-globules.

" Although the cord was carefully hardened in solution of chromic acid, the parts that had been softened by disease became so friable that there was scarcely a possibility of making any sections of them.

At the ninth dorsal nerves there was some effusion of blood at the bottom of the anterior median fissure ; and at the tenth nerves there was a large clot surrounding the central canal. Throughout the lumbar enlargement, as in the lower dorsal region, the posterior columns were quite pulpy, and blood was effused not only around the canal, but into the lateral and anterior grey substance, and into the anterior median fissure. At the middle of the lumbar region the extravasation of blood was so great that very nearly the whole of the grey substance was obliterated or obscured, and replaced by a pulpy chocolate-coloured mass, as represented by the dark interior of Fig. 1. All the white columns, but particularly the posterior, were

FIG . 1.
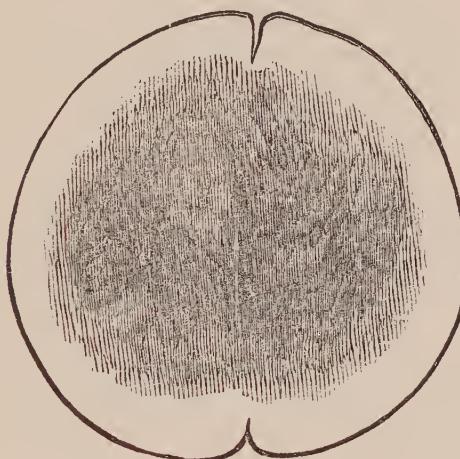
very soft, and their deeper layers were in some places involved in the red softening. At the lower part of the lumbar enlargement the red softening extended through both the anterior columns, and on the left side quite to the surface, where it appeared in the form of the bare space or wound, which poured out the pulpy mass, as already described. Fig. 2 represents a transverse section at this point. The

FIG . 2.
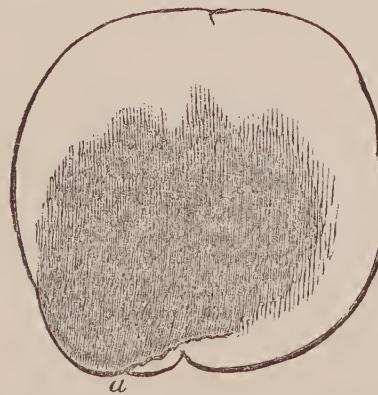
dark space indicates the extent of the red softening. On descend-

ing through the conus medullaris, these morbid appearances gradually
diminished, and ceased entirely at its lower part.

"This was evidently a case of acute myelitis supervening on some
cerebral disorder, which appears to have subsided as the spinal cord
became affected by acute inflammation."

(B) CONCERNING THE RESPIRATORY SYSTEM.

ART. 46.—*On a Mode of registering the Respiratory Movements, and its Value in Diagnosis.*

By Dr. HYDE SALTER, F.R.S., F.R.C.P., Lecturer on Phy-
siology and Pathology at the Charing-cross Hospital Medical
School, and Assistant Physician to the Hospital.

(*Lancet*, August and September, 1865.)

In a series of Lectures on Dyspnœa, delivered at the Royal College
of Physicians, Dr. Hyde Salter showed that it was practicable to
represent the various forms of respiratory movement, engendered
by divers sources and degrees of respiratory disturbance, dia-
grammatically.

He also described an instrument, by means of which the respira-
tory movements would themselves effect such a representation, and
set forth its value in the diagnosis of the motor phenomena of respi-
ration. The instrument he proposes to name the "Spirograph," and
its construction and action are as follows :—

The Spirograph is designed to exhibit two movements at right
angles to one another, the one representing inspiration and expira-
tion, and the other the lapse of time ; one, in fact, the respiratory
movements, the other the inspiratory intervals.

It consists essentially of two parts—the sources of the two re-
quired movements, the movement of time and the movement of
breathing. One, a bell-jar and the parts set in movement by it ; the
other, an arrangement of clockwork and the parts set in movement
by it. The result is achieved by the one movement registering itself
on the other movement.

The bell-jar, which should be as thin and light as possible, is sus-
pended from one end of a beam delicately balanced on a knife edge.
From the other end of the beam hangs a rod, up and down which a
counterpoise is moveable, exactly balancing the bell-jar ; to the
extremity of this rod is attached a pencil or brush to mark the re-
quired lines. The bell-jar works up and down in the interspace
between two concentric metal cylinders, the space between which is
filled with water to a level higher than the inferior margin of the
bell-jar ever reaches at its highest elevation ; so that the sides of
the bell-jar are always immersed in water, and the air within it is
isolated and cut off from all external communication. It is manifest,
then, that the volume of contained air cannot be varied without

raising or depressing the bell-jar. The arrangement is, in fact, that of a gasometer. A tube, guarded by a stopcock, opens under the centre of the inner cylinder; over the outer orifice of this metal tube is fixed, when the instrument is used, a piece of indiarubber tubing, and to this again an ori-nasal mouthpiece, similar to that of a chloroform inhaler, through which the operator breathes. To the other end of the stand is fixed an arrangement of clockwork, moved by a mainspring in a cylinder, in the usual way, and regulated by a fly wheel. This clockwork sets in horizontal rotatory motion one of two cylinders placed above it; the cylinders are of exactly the same size. When the instrument is to be used, a strip of cartridge paper, hardly as wide as the cylinders are long, is closely wound round the cylinder that the clockwork does *not* move, and the vertical edge of its free extremity fixed to the cylinder that the clockwork *does* move. The effect, then, of setting the clockwork going is to wind the paper off one cylinder on to the other, imparting to it an equable horizontal movement. Thus by means of the connecting paper, the active cylinder imparts a rotatory movement exactly similar to its own to the passive cylinder, which only comes to a stop when the paper is completely wound off from one cylinder to the other.

When the instrument is to be used, the operator fixes the ori-nasal mouthpiece carefully over his nose and mouth, turns the stop-cock which opens the tube under the bell-jar, and establishes a communication between his lungs and the air in the jar, and commences to breathe. By means of a rod passing under the instrument and connecting the stop-cock with the check of the fly-wheel, the movement made in turning the former releases the latter, and sets the clockwork in motion. This connexion, however, between the two parts of the instrument may at pleasure be broken, and it is often convenient to do so. Supposing, now, that the clockwork is set in motion, but that the operator does not breathe through the tube, it is manifest that as the paper is wound off one roller on to the other it will pass horizontally against the point of the pencil, and thus simply have a straight line marked upon it. Supposing, on the other hand, that the clockwork is not set in motion, but that the operator merely breathes into and out of the cylinder, it is now manifest that the pencil, passing up and down against motionless paper, will merely mark a vertical line. But supposing, in the third place, that both movements are combined—that the breathing of the operator sets the pencil in vertical motion, whilst the clockwork sets the paper in horizontal motion, it is equally manifest that we shall get neither of the former motions, but an intermediate one, or the two combined —neither vertical nor horizontal, but oblique; that as he expires, the bell-jar ascending and the pencil therefore descending, a line will be drawn obliquely downwards from left to right; that at the post-expiratory pause, the pencil remaining stationary while the paper continues to pass from right to left, a horizontal line will be marked proportionate to the length of the pause; that as he inspires, the bell-jar descending and the pencil therefore ascending, a line will be drawn obliquely upwards from left to right; and, lastly, that the ascending and descending lines will have a length and obliquity

proportioned to the rapidity with which the inspiratory and expiratory acts are respectively performed.

Indicating the use of this instrument, Dr. Hyde Salter said :—

" And now it may be asked—What is the practical use of all these critical distinctions between the different forms of dyspnœa? What am I the better for knowing what kind of zigzag is characteristic of asthma, and what of laryngitis? How will this instrument help me in the treatment of disease ?

" About the first point—the utility of a critical knowledge of the laws of dyspnœa, its mechanism, and the diagnostic characters of its different varieties — there can be no doubt at all. Such special knowledge has the value of all aids to diagnosis. Many a time it has enabled me to decide a doubt, to correct an erroneous impression, or to make a short cut to a diagnosis. The respiratory movements have often, in relation to diagnosis, the power of the ancient Tribunes—the power of the ' veto.' They say what cannot be, and this negative evidence is often of the highest value. It may require a further investigation to determine exactly what is the matter with a patient's lungs, but the mere examination of the respiratory movements is often quite sufficient to show what is not the matter with them. Let me give some examples.

" A short time ago a young lady came to me from the country with the idea, which was also entertained by her medical attendant, that she was suffering from asthma. She had paroxysmal difficulty of breathing, which was evidently under the influence of nervous causes. She had no bronchitis, emphysema, or heart-mischief, and she was not anæmic. Her difficulty of breathing, therefore, it was thought must be asthmatic. But I found on examining her respiratory movements that, in spite of there being an appearance of great difficulty of breathing, they were remarkably free, and their range wide ; that there was not the slightest bar to the freest chest expansion. I saw at once that the case could not be one of asthma ; for unless we surrender the only tenable pathology of the disease, it is manifest that asthma and free chest-expansion cannot co-exist. The case proved to be one of nervous dyspnœa, or hysterical dyspnœa, or subjective dyspnœa, or whatever we may like to call it, and was in no way asthmatic as was supposed. Here, then, was a case in which range of movement was the turning point of the diagnosis.

" Two or three months ago I was called into the country to see a lady who was supposed to be suffering from severe bronchitis. The lady herself was frightfully nervous, and thought that she was in dying circumstances. After saying a few words to her, I asked her to let me feel her pulse, and she gave me her hand with an expression on her countenance as if she was to read her death warrant in my face. While I appeared to be feeling her pulse I was counting her respirations, and I was able immediately to assure her that it was utterly impossible not only that she could have severe bronchitis, but that she could have anything serious the matter with her lungs at all, as she was making only twenty respirations a minute. No doubt she had had a little bronchitis, but when I saw her the thing

was over, and she was keeping herself ill by the treatment to which she was subjecting herself. She was unable to resist the arguments by which I supported my assertion, and she speedily discovered that she was not so bad as she thought, because she found it was impossible she could be. In a day or two she left her bed, her wrappings, and her fears. Here, then, was a case in which the *respiratory interval* was the turning point of the diagnosis.

" In listening to patients breathing whose lungs, to use a common expression, have been supposed to be ' affected,' I have frequently found, and it has often been the first thing to strike me, a well de-veloped post-expiratory rest—a long pause after each expiration before the commencement of the next inspiration. Such a pause gives a remarkable deliberateness to the respiratory act, and asserts in the most positive way the functional integrity of the lungs; for it shows that the respiratory resources are so far in excess of the respiratory demands as to permit the lapse of a certain amount of surplus time before each successive repetition of the respiratory act becomes necessary. Now the first result of all organic disease of the lung is to curtail its functional resources; and therefore one of the earliest symptoms of all pulmonary disease whatever is to diminish or destroy this post-expiratory rest: where, then, I find it present and well developed, I feel certain, all appearances to the contrary notwithstanding, that the lungs are perfectly sound. Here, then, is a case in which the *respiratory rhythm*—the relative pro-portion of the different parts of the respiratory act—becomes the turning point of our opinion. And surely this is a great advantage; surely it is a great advantage to be able to sweep away from one's mind and from the minds of one's patients, by so momentary a process as the recognition of a single unobtrusive incident of the respiratory movements, the incubus of a painful uncertainty and apprehension—to feel in a moment perfectly certain and perfectly easy.

" With regard to the instrument, time only can prove its practical utility as an aid to clinical study; but, on the other hand, time alone can *disprove* it. I may very safely at present challenge any-one to prove to me that it is worthless. One thing is quite certain— that it will do its work: it will make these lines, and the lines so made will have a certainty and a positiveness that no interpreta-tion of phenomena on the part of an observer can possibly have.

. . . .
. . . . . . They will have the same kind of value as a photo-graph. A photograph is made by the sitter, not by the artist; so these lines produced by the instrument will be made by the patient, and not by the doctor. The patient's breath will be, as it were, the hand that moves the pencil; the lines will not be ' doctored,' whatever the patient may be. There will be no disputing them; it will be impossible to say they are the result of imagination or error. The only thing that I think may impair the practical value of the instrument is the conscious direction of the attention to the respiratory movements which its use may involve. I have already adverted to the disturbance which the intervention of the conscious

will introduces into the respiratory movements. No person can breathe consciously and breathe naturally at the same time ; and as healthy breathing, when consciously performed, becomes modified thereby, so would the various forms of diseased breathing. I regard this as a fatal objection, unless it can be obviated. I should not attach the slightest value to any observations on the respiratory movements, or anything connected with them, if they were made when the attention of the patient was directed to what he was doing, and how he was breathing. But this difficulty *can* be obviated. By means of the valve in the breathing-tube the respired air can be directed into or out of the bell-jar at pleasure, and the instrument set going at the will of the operator without the patient being in the least conscious when this is done ; and thus the observation may be taken when his breathing has settled down into a regular swing, and his attention is occupied by some other subject. There is no reason why the instrument should not work so quietly that this change might be made without the patient's knowledge. No doubt there will be many cases in which the respiratory movements would be of great interest, but in which the patients will be too ill to make use of this or any other instrument. This, however, merely expresses the limits of its application, as it would in any other in- strument, and in no way affects the value of the information derived from it in those cases in which it can be used.

" It is impossible to predict what may be the future place of any newly invented instrument, or what may be the ultimate value of the facts obtained by it. No doubt the discoveries of Galvani and Volta appeared once to be very barren and profitless speculations ; and one of these days this instrument may be looked upon as a useful, if not indispensable, aid in that process of analysis which we call diagnosis. And even should any disqualifying circumstance—such as size, cost, or complexity—be a bar to its general and every-day utility, should it be rather the luxury of the pathologist than the necessity of the physician, nevertheless, if it enlarges in ever so small a degree the domain of our clinical knowledge, its invention will not have been in vain."

ART. 47.—*On the Practical Application of the Laryngoscope in Medicine.*

By Dr. EBEN. WATSON, M.A., Lecturer on Physiology in Anderson's University, Glasgow.

(*Lancet*, July, 1865.)

Dr. Eben. Watson, in a paper on " Laryngoscopy and its Revela- tions," states as follows the points which he considers important as to the practical application of the laryngoscope in medicine :—

" 1. Laryngoscopy is a useful addition, but only an addition, to the means of diagnosis in laryngeal cases. The results of the former, especially in this, the infancy of the art, should be cautiously com-

pared with, and corrected by, those of the latter, before they are relied on for practical purposes.

"2. Laryngoscopy is chiefly applicable to the diagnosis of the chronic affections of the larynx.

"3. In some cases, however, of acute disease of the larynx, when occurring in adults, the laryngoscope may be used with advantage, if well borne by the patient.

"4. The special office of the laryngoscope in diagnosis is to give negative evidence—i.e., to show what is *not* the state of the larynx.

"5. But in some cases, such as ulcers, tumours, &c., it does give positive information which could not be otherwise obtained.

"6. The glottis and the parts above it are, in my opinion, the only ones which can be diagnosed by the laryngoscope with sufficient certainty to be relied on as a foundation for treatment.

"7. I think that laryngoscopy is neither required for, nor assists in, the ordinary topical medication of the larynx, and that it is a most unsafe guide in surgical operations on that organ."

Art. 48.—*On Hooping-Cough and its Treatment.*

By Dr. Lochner.

(*Schmidt's Jahrbücher,* vol. cxxvii.)

Dr. Lochner, (Bayer. Arztl. Mt. Bl. 1865,) in an epidemic of hooping-cough in the summer and autumn of 1864, observed 43 children, 23 boys and 20 girls, of whom 11 were under one year old. They were mostly healthy and strong, and feeble and scrofulous children frequently escaped the disease, contrary to the statements of Biermer and others. Diet, cleanliness, and other external conditions seemed to be without influence. During the epidemic, Dr. Lochner himself contracted the disease, although he had suffered from it when about five or six years old. After eight or ten days of catarrh, paroxysms of cough occurred of the same kind as in children, but of less duration and severity. Dr. Lochner found change of position to be the ordinary exciting cause of a paroxysm ; and at the beginning of each he felt the descent of viscid mucus to the entrance of the larynx. At the end of the paroxysm a little tough bluish mucus was usually coughed up, with a feeling of sickness. Marked change of temperature also produced coughing ; and during the cough, as well as on moving the larynx, there was very evident, but not excessive, pain or tenderness of the parts about the pharynx and larynx.

In considering the pathogenesis of hooping-cough, Dr. Lochner's observations lead him to deny the invariable presence of bronchitis in the early stage ; and to reject the belief that the disease is a neurosis based upon a bronchitic foundation. He considers the bronchitis as a complication, the character of which varies in different epidemics ; and thinks that hooping-cough is essentially an epidemic catarrh of that portion of the mucous membrane of the

throat that is common to the œsophageal and respiratory passages. By extension to the posterior surface of the epiglottis, and to the false vocal cords, this catarrh occasions the descent of secretion to the rima glottidis, and thus gives rise to reflex spasm: especially in children, who without reflex action would be unable to expectorate the mucus.

The character of the epidemic observed by Dr. Lochner was mild; and only one of the children died (from marasmus). He was convinced of the ordinary inefficacy of the treatment commonly practised, so far as it is directed against the cough. He sent the coughing children to the purifying room of a gas manufactory; and, in order to avoid the inconvenience of such visits for little children, he afterwards employed the substances given off in vapour from the gas cleaning boxes, the hydrophenyl (an impure benzin) and obtained from it the same results as by the stay of the children at the manufactory; the attacks becoming less severe and less frequent. Dr. Lochner administered the benzin in doses of from ten to fifteen drops internally; and maintained its action during sleep by pouring a few drops upon the bed covering. The room was kept moderately warm; and the children were sent into the open air in fine weather. The headache, that was produced more readily by the inhalation of benzine than by its internal administration, soon disappeared. Dr. Lochner also observed the beneficial action of benzin upon the bronchitic symptoms, and recommends its employment in bronchial affections.

From France, also, we obtain some information about the use of the volatile products of gas purification in hooping-cough.

Commenge (*Bull. de l'Acad.* 1864), between the 1st of March and the 1st July, 1864, watched the remedy in 88 children at the gas-factory at St. Mandé. Of these, 54 were completely cured, 24 were improved, and in 10 the treatment wholly failed.

Of the 88 children, 23 were treated by the inhalation only, 65 in various other ways. In 61 cases the hooping-cough was very severe, in 27 of moderate intensity.

At the beginning of the inhalations the disease in 51 children had existed from two to three weeks; in the other 37 cases, from one to three months. In the latter the effect was as favourable as in the former; but in most of them the patients applied on account of an accession of cough, with renewed severity and threatening symptoms.

In the 24 cases that were only improved, the average number of inhalations was nine; for 16 recent cases the average was eight; and for 8 old cases, ten.

In the 54 cases that were cured the author observed improvement after an average of five inhalations, and complete cure after an average of twelve and a fraction.

In 38 of these cases the hooping-cough was of considerable severity, and for these an average of fourteen inhalations was required. In the remaining 16 the disease was less severe, and an average of ten inhalations produced the same results.

The effect of the inhalations appears to be entirely independent

of the duration of the disease. The age of the patient seemed also to be of no account; and a cure was obtained with equal readiness in children a few months or several years old.

The improvement was always ushered in by increase of appetite, return of vivacity and strength, and diminution of the acuteness of all the symptoms characteristic of the disease. The sleep became more sound, the paroxysms of cough less frequent and less severe, until they entirely lost their distinctive characters.

In a very few cases the paroxysms remained unaltered, notwithstanding that signs of general improvement appeared, and that appetite and sleep returned. There were other cases in which the inhalations up to the fourth or sixth appeared to aggravate all the symptoms. Some of these children were withdrawn from the treatment, and their coughs continued; others persevered, and shortly derived benefit.

In all the cases, every other kind of treatment was suspended during the inhalations; and the average duration of an inhalation was two hours. Some of the parents carried home with them to the children's bedrooms some of the substances yielded by the purification of the gas, and their children improved more rapidly than those that only visited the manufactory.

Commenge has long ago observed, that the workpeople employed in the purification of gas are seldom ill; and he was scarcely consulted by them for any but slight cutaneous affections.

Dr. Meissner, of Leipzig, has recently published a pamphlet, in which he maintains that deaf mutes enjoy a comparative immunity from hooping-cough; and Dr. Wimmer, of Munich, maintains a similar position with regard to blind children.

Art. 49.—*On the Use of Raw Meat in Phthisis.*

By M. Fuster.

(*Medical Times and Gazette*, July, 1865.)

M. Fuster's mode of treatment of phthisis formed the subject of a paper laid before the Academy of Sciences. He only introduced it into his clinical ward at Montpellier last April, and reports already its success, in order to induce others to give it a trial--not so much, indeed, as a cure of phthisis, as a means of restoring the strength in exhausting diseases, such as phthisis, purulent infection, and the like. The treatment consists in the employment of raw meat in conjunction with small doses of very diluted alcohol. Raw mutton or beef reduced to a pulp in a mortar and separated from the tendinous portions by means of a sieve, is given in boluses rolled in sugar, or in the state of sugared pulp by teaspoonfuls at a time; so that from 25 to 75 drachms are taken daily. A drink is made by diluting a portion in cold sweetened water for allaying the thirst. The alcoholic potion is composed of 25 drachms of alcohol at 20° Baumé diluted in 75 drachms of sweetened vehicle, and given

in tablespoonful doses every hour. The proportion of alcohol and the intervals at which it is given must, however, vary with the susceptibility of the individual. The combination of the two agents is, in M. Fuster's opinion, indispensable for the production of a beneficial effect, "the one seeming to exercise a reconstituent action, and the other a more direct action on the organs of hæmatosis." He declares that, under the influence of such combination, several patients suffering from advanced phthisis and purulent infection have become completely cured; though, seeing the short time that has elapsed, temporarily alleviated would be probably the more correct expression.

In a subsequent note to the academy, M. Fuster specifies some of the conditions which must be observed in the employment of his plan of treating phthisis by raw meat and alcohol. He says that additional experience, now extending to several hundred cases, only confirms his former statement of the value of the means. This renders it the more necessary for him to specify some particulars. 1. In the advanced stages of the disease there always exists well-marked "gastricity," as indicated by disgust at food, oppression, diarrhœa, repugnance for all remedies, &c. This condition must be removed before any amendment can be obtained; and for this purpose an ipecac. emetic is the best of means. After its operation, the taste for the raw meat and alcohol, as well as for a substantial regimen, returns. Whenever this gastric condition recurs the meat and alcohol must be suspended, and the emetic again taken, and that even when moderate hæmoptysis is present. 2. When the heats, irritability, and consecutive sweating of hectic fever are very intense and persist for two or three days after the treatment, the entire surface of the body should be sponged with weak vinegared water, of the same temperature as the apartment. The sponging should be finished in thirty seconds, and the skin having been superficially dried with fine linen, the operation should be performed once or twice more, well sheltered from currents of air. 3. When the patient is tolerably fleshy, and especially if he be the subject of any humoral dyscrasis, as scrofula, herpetism, syphilis, &c., the efficacy of the remedy is aided by the establishment, by means of the Vienna paste, of an issue as near as possible to the local lesion, and the keeping this open. 4. The sleeplessness and persisting irritability of patients yield much better to belladonna than to opium. The ordinary dose must not exceed five centigrammes of the extract in the twenty-four hours; and the use of this must be interrupted for a day or two if the pupil become dilated, or there is any confusion of the intellect. 5. Fixed or fugitive pains of the chest and abdomen may be usually relieved by a mustard poultice or flying blister. 6. M. Fuster has found it of advantage to add to the alcoholic mixture twenty-two grains of the iodide of potassium in the not uncommon cases in which the consumption has seemed to originate in, or become complicated with, a scrofulous or syphilitic affection. It may be slowly and progressively increased to from 45 to 60 grains per diem. 7. In the advanced stages of the disease all other medicines must be absolutely suppressed, such as cod-liver

oil, milk diet, &c., which are more likely to precipitate prostration than increase the strength.   8. It is always to be borne in mind that the raw meat and alcohol treatment is always long and very troublesome ; but the above, together with modifications of the doses of the meat and alcohol and intervals of administration, are the principal conditions, most likely to secure the efficacy of this mode of procedure.

(c) CONCERNING THE CIRCULATORY SYSTEM.

ART. 50.—*On a Case of Tubercular Pericarditis.*

By M. PROUST.

(*Gazette Médicale*, No. 31, August 5, 1865.)

CASE.—The patient, a tiler, aged twenty-five, was under Dr. Natalis Guiot's care, in the hospital La Charité.   He was admitted November 10, 1864, and died December 1, 1864.   His previous health had been good. About three months before his admission, he caught a cold whilst travelling by rail, shivered a little, had to keep his bed for twenty-four hours, but on the second day was able to resume work.   For a few months previously he had lost flesh.   A month before he became an in-patient of the hospital, he noticed that his legs swelled.   He has never had præcordial pain, no appreciable dyspnœa, no palpitation of the heart ; for a fortnight or so only he had found that he got a little out of breath whenever he went up a staircase or walked for a pretty long distance.   He had no hereditary predisposition to any special disease.

On admission he presented the following symptoms : very marked œdema of the lower limbs ; enormous swelling of the legs, and even of the thighs ; pressure gives pain ; œdema of the scrotum and penis ; moderate ascites ; slight œdema of the abdominal parietes.   No serous infiltration of the face or other parts of the body.   No bulging of the præcordial region, which is, on the contrary, rather sunken in.   On inspection, a feeble undulating movement is perceived below the nipple, but there is no distinct impulse.   There is considerable increase of the area of normal dulness, both diagonally and from above downwards.   The shape of the area of dulness is that of a truncated cone with the base upwards.   Over this space the heart sounds are muffled and are more distinctly heard over the base of the heart ; they are normal in character.   The pulse is small, rather frequent, not very irregular ; occasionally, however, one beat fails or is very feeble.   The veins of the neck are swollen, but there is no venous pulse. There are a few mucous rhonchi behind and on both sides ; the respiratory murmur is less distinct posteriorly on the left side, and the chest is there sunken in, as in old cases of pleurisy ; cough somewhat frequent.   Expectoration profuse and of a mucous character.   Liver increased in size, and painful on percussion.   Slight yellowish discoloration of the skin.

After admission the dyspnœa went on increasing, and the œdema also. Effusion took place on the right pleura, as shown by dulness on percussion, slight blowing murmur, and œgophony.   The patient died after repeated attacks of intense dyspnœa.

Post-mortem examination.—Enormous distension of the pericardium, which looks like an immense fluctuating bag, extending from the right edge of the sternum as far as the left extremity of the thoracic cavity.   The

effusion has pushed down the diaphragm and compressed the left lung, which is considerably reduced in size. Left pleura normal ; the right pleural cavity, on the contrary, contains a considerable amount of reddish serosity. The fluid in the pericardial sac presents the same characters, and is estimated to amount to about fifteen or sixteen hundred grammes. The parietal layer of the pericardium is enormously thickened, measuring from nine to twelve millimetres. Its inner surface is uneven nearly all over, and is lined by recent false membranes, rough and somewhat shaggy, and removed by the least friction. In some places patches of a uniform red tint are seen, consisting of round granulations of the size of a lentil, of a yellowish white tint, and rather hard. Some of these granulations were hard, others soft, some white, others yellow. The surface of the heart was covered with false membranes, of somewhat firm consistency, and applied one over the other. The anterior wall of the left ventricle measured thirty-one millimetres, fifteen of which consisted of the muscular fibres of the heart, and the remaining sixteen partly of a yellowish white, rather hard tissue, partly of a pink portion very much like muscular tissue, and partly of the above-mentioned false membranes. Both lungs were full of small grey granulations, of cartilaginous consistency. At the apex of both of them were three cretaceous tubercles.

In commenting on the case M. Proust dwelt on the enormous amount of fluid effused in the pericardium, on the absence of precordial bulging notwithstanding this accumulation of liquid, on the fatty degeneration of the outermost layers of the muscular fibres, as demonstrated by the microscope, and lastly, on the identity between the granulations found on the inner surface of the pericardium and ordinary tubercle in their microscopical characters. In conclusion, M. Proust cites similar cases from a memoir by Leudet, from Laennec's great work on Auscultation, and mentions eight cases published by Dr. Janoud, and two more which have been recorded in the Bulletins of the Anatomical Society of Paris.

Art. 51.—*Pulsation of the Vena Cava Inferior in Insufficiency of the Tricuspid Valves.*

By Seidel.

The author possesses at Jena an abundance of material for studying the diseases of the heart in general, and the venous pulse in insufficiency of the tricuspid valves in particular. The following cases prove that the perceptible venous pulse, in this form of heart disease, is present in the inferior cava.

Case 1.—The patient, twenty-two years old, had suffered from heart disease for many years, and was admitted with great œdema of the feet, ascites, extensive dulness of the cardiac region, small pulse, a double murmur at the apex of the heart and also over the right ventricle. The diagnosis was stenosis and insufficiency of the mitral valve, and insufficiency of the tricuspid valve. There was considerable cyanosis with no venous pulse in the neck. 7600 cubic centimetres of fluid were evacuated by paracentesis

abdominis ; and during the operation the liver was found to move to and fro with a force that suggested the idea of aneurism. This pulsation continued until the abdomen had refilled, and returned after a second tapping. It was like the impulse of the apex of the heart, and lifted the superimposed hand of the observer into the right hypochondrium. The post-mortem examination confirmed the diagnosis. The vena cava inferior was found to measure more than twelve centimetres (five inches) in circumference ; the vena cava beyond the liver eight centimetres ; the hepatic vein allowed the passage of the middle finger, and the vena portæ measured three centimetres. The channel of the vena cava could not be clearly distinguished from the auricle of the heart, which appeared as if prolonged downwards with gradual diminution of size. The abdominal aorta would scarcely allow the passage of the index finger.

CASE 2.—A woman, aged forty-nine, in whom disease of the heart had long been manifest, suffered from great general dropsy, and from an enormous ascites. Examination revealed disease of the mitral valve, and chiefly stenosis and insufficiency of the tricuspid, with marked venous pulse in both internal jugular veins, and especially at the bulbus jugularis. Paracentesis gave exit to 9300 cubic centimetres of fluid, and during its discharge the same hepatic pulsation was observed as in the preceding case. It disappeared as fresh effusion intervened between the liver and the abdominal parietes.

CASE 3.—A woman, thirty-eight years old, affected for some years with stenosis of the aorta, was at the point of death from the setting in of general stenosis and insufficiency of the mitral valve and dropsy. Shortly before, symptoms of insufficiency of the tricuspid valve had appeared ; among others, pulsation of the right internal jugular vein, and loud whizzing in both. To the right of the umbilicus, underneath the enlarged liver, could be seen and felt a deep pulsation, as if of a soft substance. The autopsy confirmed the diagnosis ; the right internal jugular was very wide at the bulbus, the inferior cava much dilated.

The author observes, with regard to certainty of diagnosis during life, that the pulsation described could not have been aortic under the existing state of the valves. Neither could it have proceeded from the right ventricle, the action of which, even under the most favourable conditions, does not extend to the liver, and because the pulsatile elevation did not accurately coincide with the systole. In the third case, also, the pulsation was beneath the liver, which could be felt at rest above it.

ART. 52.—*Case of Filaria Medinensis.*

By Dr. Gustav Láng, of Pesth.

Dr. Láng records the case of a man, a native of Kungrat, on the south shore of the Aral Sea, who visited Bokhara in June, 1863. On his journey he took no bath, never went barefoot, and never slept on the bare ground, but drank water. In the spring of 1864 he reached Pesth, and towards the end of June noticed a boil in the right ham, which opened and gave exit to the head of a filaria. The worm was broken in an endeavour to extract it, and inflammation

and suppuration occurred in its track. The pus contained millions of dead embryos ; and the inflammation was so severe as to require a free incision, after which the wound completely healed in three weeks from the breakage of the worm. In the meanwhile, a second filaria appeared in the right lumbar region. This also was broken, and was then exposed by a free incision, and partly removed, partly cast off in discharges. The wound soon healed. Bokhara is a new locality for the worm ; and, according to the statement of the natives, it usually gains admission into the system through the drinking water.

Art. 53.—*On Certain Forms of Heart Disease, and their Liability to Terminate in Sudden Death.*

By Dr. A. T. H. WATERS, Physician to the Liverpool Northern Hospital.

Dr. Waters offers the following observations on this subject :—
" The disease of the heart which is most liable to terminate in sudden death is, undoubtedly, fatty degeneration of its muscular fibre. It is unnecessary to refer to statistics to prove this statement : the experience of most practitioners will confirm it. When fatty disease attacks the muscular substance of the heart, there is a gradual obliteration of its contractile element, and a gradual diminution of its contractile power. To such an extent does this sometimes take place, that, on making an examination of the tissue of the heart, we find but little evidence of its muscular nature ; and we are surprised, not that death has occurred, but that life has been so prolonged. Death not unfrequently takes place suddenly in this disease without the previous occurrence of any well-marked symptom, such as to arrest the attention of the patient and warn him of his dangerous malady ; and although it is probable that, in all such cases, a careful examination would reveal evidence of enfeebled heart, or of certain reflex phenomena, slight, but important in a diagnostic point of view, yet the absence of prominent features—such, for instance, as usually characterize the progress of valvular disease of the heart and of certain affections of its muscular walls—often leads the sufferer to imagine that no serious malady exists. And it is a circumstance of no little interest and importance that even when fatty degeneration of the heart is far advanced we occasionally find the pulse moderately full. I have known instances where this condition of pulse has misled as to the nature of the disease.
" But beyond this question of the great liability of fatty disease of the heart to terminate in sudden death, there are some further points in relation to sudden death from valvular disease of great practical importance. Amongst these are—1st, *the probabilities of sudden death in valvular disease ;* and, 2nd, *the particular form of valvular disease most liable to terminate in sudden death.*

"In regard to the first point, I think it may be safely affirmed that, speaking generally, the proportion of cases of valvular disease terminating in sudden death is very small. In the large majority of cases death results slowly, from the secondary consequences of the affection—dropsy or some other diseased condition. Dr. Barc'ay has recorded a series of 79 fatal cases of valvular disease which occurred in St. George's Hospital. Two only of the deaths are mentioned as having been sudden. This proportion of sudden deaths is very small, and perhaps must not be taken as the usual one. My own experience certainly gives a larger proportion.

"In relation to the second point, the particular form of valvular disease most likely to terminate in sudden death, I am not aware that any statistical tables exist which would tend to determine the question. It would be a matter of great moment, considering the strong impression which prevails amongst the public of the great liability to sudden death in heart-disease, if we could arrive at any precise conclusions in regard to this subject—if, in fact, we could by the examination of a large number of cases deduce a rule of probability applicable to these valvular diseases. The experience of a single individual, unless extraordinarily large, would scarcely serve for any definite conclusions; but if a number of practitioners were to direct their attention to this particular point, the most valuable statistics might be obtained. Dr. Walshe, in the last edition of his work on "Disease of the Heart," has entered somewhat into this question; and he states that, according to his experience, the form of valvular disease most liable to terminate in sudden death is uncomplicated aortic regurgitation. On the other hand, Dr. Stokes is of opinion that mitral regurgitant disease is most liable to fatal syncope.

"Theoretical considerations lead me to the conclusion that, of the two forms of disease just mentioned, mitral regurgitation is more liable to terminate in sudden death than aortic regurgitation. In the latter affection the dilatation and hypertrophy of the left ventricle are especially salutary. If the disease is chronic, the ventricle gradually adapts itself to its altered requirements, and, for a time, but few symptoms sufficiently severe to attract the attention of the patient may result. In consequence of its dilatation and hypertrophy, the ventricle is able both to hold a larger quantity of blood than in health, and to contract with greater power, so as to throw all its contents into the aorta. The arterial tubes thus become well filled by each ventricular systole—in fact, they receive more blood than when the heart is in a normal condition; but in consequence of the imperfect closure of the semilunar valves they lose a portion of this blood, and hence the sudden collapse of the arteries after their diastole, which gives so peculiar a character to the pulse in aortic regurgitant disease. Now, as the structures of the body get well supplied with *blood so long as the ventricle retains its vigour*, there is, speaking comparatively, but little element of syncope and sudden death. On the other hand, when the mitral valve is diseased, so as to allow of regurgitation, a portion of the blood which ought to go to fill the arteries passes back into the left

auricle. Hence these cases are characterized by a small pulse—a pulse of little volume.   If the amount of regurgitation is large, the quantity of blood passing into the systemic vessels will necessarily be small.   Here we have the element of syncope ; and, as the result of an unusually feeble contraction of the ventricle, or of some em-barrassment to its action, sudden death may ensue.   Whether such embarrassment is more likely to take place in mitral than in aortic regurgitation is a subject for careful study and observation.

" On looking over the cases of sudden death amongst my own patients, I find that I have had about an equal proportion of deaths from the two forms of disease to which I have referred, and, con-sequently, my own experience tends neither to confirm nor to con-tradict the opinion I have expressed on theoretical grounds.   The question is one especially for statistics, and it is chiefly with the view of eliciting facts, and the opinions of those who have had a larger experience than I have, that I have brought the subject for-ward.

" My own belief is, that it is a very rare thing for valvular disease to produce sudden death, unless the muscular substance of the heart has undergone a weakening or a degeneration of its fibre.   As long as the muscle retains its vigour, the grand cause of syncope is want-ing. In all cases of sudden death from heart-disease in which I have made a post-mortem examination, I have found fatty degeneration of the muscular fibre to a greater or less extent. The recognition of this fact is of great importance, as it points out the line of practice that should be adopted in the management of all cases of valvular disease."

ART. 54.—*On an Unusual Case of Dislocation of the Heart.*

By Dr. RAGNAR BRUZELIUS.

(*Dublin Medical Press*, May, 1865.)

This case was originally published in the Swedish Medical Journal *Hygeia*, from which it has been translated by Dr. Wm. Daniel Moore :—

CASE.—Gustaf Waldemar L——, a boy aged thirteen, residing in Stock-holm, was admitted into the medical division of the Seraphim Hospital on the 10th November, 1863. According to the history obtainable about the patient, whose mother died two years and a half ago, of, as was stated, pulmonary consumption, he passed his earlier years under peculiarly un-favourable hygienic conditions, and from his third year was troubled with oppression of the chest and cough, and always had a pale and pinched appearance. At the age of four years, in the winter of 1854, he was under treatment in the Crown Princess Louisa's Hospital, in the journal of which institution his case appears with the diagnosis of bronchitis chronica et acuta. At the end of three weeks he was discharged, according to the same journal, in good health. After this time the patient cannot recollect having had any acute thoracic affection, but his foster-mother states that during the whole time (two years) that he has been under her care, he has

appeared to be rather crooked on the right side, the right shoulder being somewhat lower than the left. Five weeks ago he came home complaining of a violent stitch in the left side, which increased during the night and was soon attended with dyspnœa and high fever. On the following day a physician was consulted, who declared the case to be one of inflammation of the lung, and prescribed accordingly. The patient now kept his bed for a week, during which he had high fever, especially towards evening, and from the first day was troubled with cough with scanty expectoration, and he says that the sputa, during the first days of his illness, had a brownish appearance. The stitch, which moved from below up to the left nipple, tormented him during this time very much. But at the close of the week his state was rather improved; he now left his bed, and after some days began again to go to school; still he felt that he was not quite restored, but was hot and feverish in the evenings, wanted appetite, grew thinner, and was troubled with stitch in the left side, especially on going up stairs. He often had, particularly at night, copious epistaxis, but to this he had for many years been subject. As his general health, instead of improving, on the contrary grew worse, a physician was again consulted, who advised him to apply for admission to the Seraphim Hospital, where he was taken in on the day above-mentioned. He was ordered a wet bandage and a pectoral linctus, and on the 15th November iodide of potassium and infusion of ipecacuanha.

Status præsens the 15th November.

The patient is for his age of ordinary height, but of a weak frame and of slight muscular development. He is particularly thin, and has a pale and anæmic appearance. His skin feels dry and towards evening is very hot; perspirations then usually set in. Although he says he does not suffer from difficulty of breathing, respiration seems to take place with an effort, and to draw largely upon the inspiratory muscles in the neck, which project under the emaciated integuments. On inspection of the thorax, the supra- and infra-clavicular fossæ on the right side are seen to be more excavated than those on the left. The right half of the chest is anteriorly somewhat flattened in its upper part, but its lower portion, reckoned from the nipple, is rather prominent in the region of the cartilages of the ribs, and is broader than the corresponding part of the left side. The left half of the front of the thorax does not exhibit any abnormity of form. The intercostal spaces are not obliterated or prominent.

During inspiration, which is resonant, so that it is heard even at a distance, the disparity in the movements of the two halves of the chest is observed, the right side moving but slightly and less than the left, whose motion likewise appears to be more limited than is normally the case. The respiratory movements consist chiefly in the rising and falling of the thorax, while the lateral dilatation seems to be but trifling. On inspection of the posterior part of the thorax, the right side seems to be collapsed, particularly from an inch above the lower angle of the scapula downwards, while it is slighter than the left side, which, on measurement in the horizontal mammillary line, is one inch and a half wider than the right. The spinal column presents a slight scoliosis with the superior convexity to the left, corresponding to the interscapular space, and with the inferior to the right.

The sound on percussion over the upper and anterior part of the right lung is rather short, but clear, and is accompanied with tympanitic resonance down to the third rib, whence to the margin of the ribs it is perfectly dull. Over the whole posterior surface of the right lung it is short and obscure, the more so as we proceed downwards. The left anterior surface of the chest yields a particularly full and clear sound on percussion from above as far as the fifth rib, where the tympanitic sound of the stomach com-

mences. The full and clear sound extends towards the right under the whole breadth of the sternum and somewhat into the right half of the chest, where a definite margin in the sound on percussion can be distinctly perceived. Over the posterior surface of the left half of the chest the sound on percussion is normal in the scapular region, and nearer to the spine somewhat lower down, while at the same side, on the contrary, we meet with dulness on percussion in the horizontal mammillary line, extending therefrom downwards about five inches, and increasing in breadth from above downwards. To the touch increased pectoral fremitus is perceptible over the right lung anteriorly from the apex to the third intercostal space; thence it becomes weaker downwards. On the posterior surface the pectoral fremitus is increased from above to the inferior angle of the scapula, but below this it has disappeared. Over both the anterior and posterior surfaces of the left lung the pectoral fremitus is normal, with the exception of the space where the sound on percussion is dull, for there it is rather increased. Over the anterior part of the right lung a harsh respiratory sound is heard, diminishing in strength downwards; on expiration it is somewhat blowing. Over the posterior surface of the same lung the respiratory sound is strongly bronchial, increasing in strength from above downwards to the lower part of the scapula, where it is tubal. Below this part the bronchial respiration becomes weaker and distant, diminishing in intensity downwards. No mucous râle is perceptible. Strong bronchophony is heard over the whole posterior surface of the right lung, as far as the inferior angle of the scapula.

Over the left lung an increased vesicular respiratory murmur is audible, with scattered sibilant râles throughout the space already mentioned as being dull on percussion, where the respiratory sound is bronchial. The expectoration is very scanty and catarrhal; no elastic filaments are discoverable in it. The cough is inconsiderable. The cardiac impulse is not visible when the heart is acting quietly, but it is felt feebly, but distinctly, somewhat *externally to the right nipple.* On more violent action it presents itself in the third and fourth intercostal spaces on the right side, in a circuit of one or two inches square, in the centre of which the nipple is situated. There is no trace of dulness in the ordinary præcordial region on the left side. The patient states that, so long as he can recollect, he has, when palpitation occurred, felt the heart beat at the right side. The cardiac sounds, which are pure, are heard most distinctly over the seat of the impulse.

The size of the heart cannot, in consequence of the surrounding dulness on percussion, be more accurately defined, and the same is true of the extent of the liver and spleen.

The pulse is small, 112 in the minute. Anæmic accessory sounds are heard over the cervical vessels. The tongue is soft, slightly furred : the appetite is somewhat better than at the time of the patient's admission. The bowels are regular. The urine is deep-coloured, its specific gravity is 1·025, its reaction is acid, it contains an ordinary amount of chlorides, and is free from albumen. When first passed it is clear, but on cooling it lets fall a brick-red deposit of urates.

November 20th. The patient's general state is improved ; he is less feverish and perspires less ; the pulse has fallen to 70 beats in the minute. On the left side a sub-crepitating râle is abundantly heard, the bronchial respiration is not so strongly marked. The sound on percussion in the same place is almost unchanged.

23rd. The sound on percussion in the left side is less dull, and is now rather tympanitic. A rough vesicular respiratory murmur is to-day audible

with copious loose râles ; the bronchial respiration has disappeared ; the patient's general state is satisfactory ; pills of quina and turpentine.

December 11th. The patient's general condition has steadily improved ; he has put up flesh, and his appearance is more healthy ; the râle in the left side had now disappeared, and the respiratory murmur is vesicular over the whole of the left lung : iron was prescribed.

Jan. 11, 1864. The patient now feels perfectly well. The physical signs from the right lung are quite unchanged. He was dismissed to-day.

From an elaborate examination of the whole circumstances of the case, Dr. Bruzelius concluded that it was most probable that the patient had long suffered from pleuritic effusion of the right side, during the resorption of which the displacement of the heart to the right had occurred, the right lung being, for some cause or other, unable to expand. That the history of the case recorded nothing of any previous pleuritis is an objection which may indeed be raised, but which wholly loses it value from the fact that neither the patient himself nor any of those now about him (his mother died 2½ years ago) could give an accurate account of his state of health in early years.

ART. 55.—*On a Case of Acute Myocarditis, with Perforations of the Endocardium and Emboli in several Organs.*

By Dr. ERNST ÖDMANSSON.

(*Dublin Medical Press,* June, 1865.)

This case has been translated from the Swedish journal *Hygeia,* by Dr. D. D. Moore :—

CASE.—Jacobson, aged twenty-one, was admitted into the Garrison Hospital on the 15th December, 1863.

As to the patient's antecedents, no other information could be obtained than that he had during the preceding days suffered from rigors, and had been treated at home as for ague. On the morning of the 15th he had begun to complain of pain in the abdomen, and subsequently he appeared confused. This occurred some time after the nurse had by mistake given him a different medicine from that prescribed, for which reason fears were entertained that he had got poison.

Status præsens three hours after admission.

The patient lies silent and quiet on his back, with his extremities rather bent. His face is pale, with a slightly livid tendency. Its expression indicates restlessness and suffering. When questioned he does not reply clearly, but mutters some scarcely intelligible words. The left pupil is larger than the right, and but slightly obeys the stimulus of light. On the mucous membrane of the left lower eyelid is an extravasation of blood of the size of the head of a pin. The skin is dry and burning hot. On the extremities and trunk are seen scattered vesicles varying in size from that of a hempseed to that of a pea, with turbid grey contents. On the back of the neck is an open furuncle of small extent.

The tongue is dry. No vomiting or action of the bowels since his admission. Pressure on the abdomen, which is moderately hard and distended, seems to give pain, producing distortion of the countenance. The

dulness on percussion caused by the spleen is rather more extensive than usual. The liver extends in the mammillary line from one inch beneath the margin of the ribs, nearly five inches upwards ; on the left side it reaches one inch and a half beyond the median line of the body.

The pulse is small, rather irregular, beating from 120 to 130 in the minute. The impulse of the heart is feeble, but is distinctly perceptible. The cardiac sounds are weak, unaccompanied by any accessory murmur. The breathing is hurried. The respiratory murmur is strongly vesicular.

The urine, of a pale yellow, contains a considerable quantity of albumen. It rapidly deposits a sediment, which, under the microscrope, exhibits a large number of granular tubular casts, with or without scattered granular renal cells, and numerous small nucleated cells and pus corpuscles. Ordered a bladder of ice to the head, a purgative enema, and camphorated emulsion, a spoonful every two hours.

16th. The patient lies in a state of profound coma. The flaccid extremities retain the position given to them. The pulse is still weaker than yesterday, and varies from 140 to 144 in the minute. The urine is passed involuntarily, and is scanty in quantity.

In the course of the day converging strabismus of the left eye set in. An hour before death, which took place at six o'clock in the afternoon of the same day, the temperature of the skin was still particularly high ; the pulse was about 170.

Dissection on the 19th in medico-legal form. (Extract from the minutes) :—

Extensive lividities on the posterior surface of the arms and legs, back, neck, and right side of the face. On the left forearm and both hands are seen scattered smaller reddish-blue spots, where on section the skin and subjacent connective tissue appear infiltrated with blood. Both on the trunk and on the extremities the cuticle is here and there raised in vesicles varying in size from that of a pin to that of a pea. The vesicles met with on the extremities and on the front of the trunk, contain a greyish-yellow, loose mass ; their fundus is slightly infiltrated with blood. This is in rather a higher degree the case with the vesicles on the back, which are in general larger than the others, and the contents of which are mixed with blood. On the back of the neck to the left, there is in the skin a loss of substance to the size of a bean, the resulting cavity presenting hard, uneven edges.

The pia mater and arachnoid, as well as the whole cerebral mass, are highly congested. The cerebral mass is of moderate consistence. The sinuses in the dura mater contain dark clots of blood.

In the pericardium about five ounces of a yellowish, turbid, finely flocculent fluid were met with. A large tendinous spot was found on the anterior surface of the heart. Both laminæ of the pericardium are smooth and shining. The right side of the heart is filled with coagulated and fluid dark blood, the left is almost empty. In the left ventricle there is on the septum ventriculorum, directly under the right aortic valve, an almost circular loss of substance ; in circumference somewhat less than a farthing (Swedish coin). To the upper margin of the same is attached a small lobe of the otherwise removed endocardium, the margin of which adjoining the ulcer is finely notched. The muscular substance is excavated to the depth of from one to four lines. The uneven fundus of the cavity is invested with a loose greyish mass. The part of the muscular structure immediately adjoining is discoloured, and is of brittle consistence. Both on the outer and inner surfaces of the heart, and on section, a number of small greyish-yellow points, varying in size from that of a grain of sand to that of the head of a pin, are to be seen. The muscular structure of the heart, taken

altogether, is of ordinary firmness ; between the altered points it is of normal lustre and transparency. The valves of the heart are healthy.

The lungs are posteriorly, here and there, adherent by means of firm cords of connective tissue to the wall of the thorax. In the generally congested pulmonary substance are found scattered well-defined hard parts, of a dark red colour and brittle consistency, varying in size from that of a pea to that of a nut. Some of these have a yellow coloured nucleus. The mucous membrane of the air-tubes is highly congested.

The capsule of the liver is on the anterior surface almost everywhere invested with a thin grey false membrane. Both on the surface and deeper in the substance of the organ, which is otherwise congested, and is of ordinary firmness, appear numerous small greyish-yellow foci, with dissolved contents. The gall-bladder is full of thick brown bile. The spleen, which is perhaps somewhat enlarged, is of ordinary firmness, and contains the usual amount of blood, exhibits a number of cavities of the size of heads of pins, filled with a purulent fluid. The connective tissue around the kidneys is highly infiltrated with a clear serous fluid. The kidneys are congested, rather swollen and flaccid. Greyish-yellow foci, similar to those above described, but in general somewhat more solid, are met with in them, in great number. In the pyramids these foci occur as striæ, varying in breadth.

The mucous membrane of the œsophagus is of a light violet colour. The stomach contains a small quantity of a yellowish, brown, slimy fluid. The large veins, particularly in the fundus, are highly congested. In the small intestines light yellow fæces, of soft consistence, occur ; the large intestines contain hardened excrement. The intestinal mucous membrane is pale, except in the convolutions of the large intestine, where it is rather vividly injected. The bladder is distended with urine.

On microscopic examination, the loose investing mass in the great cavity in the septum of the ventricles of the heart, proved to be composed of detritus, small granular or fatty degenerated portions of muscular filaments, scattered fat and pigment granules, and a few rather elongated nuclei. In the immediate vicinity of the cavity the muscular filaments, as well as the perimysium, contained fat globules and granules. In the small foci, of which the smaller could be investigated in their integrity at once, only a finely granular mass was seen. No embolus could be discovered. The muscular structure of the heart was otherwise unchanged ; only here and there were scattered fat globules, seen in some muscular filaments. In the kidneys the epithelial cells were found in general swollen and granular, or broken up into a granular mass, more or less filling up the urinary canals. In many places they contained fat globules in varying quantity. In the small whitish-grey foci, all the parts were so covered with fat globules that their contours could often be only indistinctly recognised. Here and there we saw that a Malpighian body formed the centre of the smallest foci. In the pyramids, where the foci in general had an elongated form, they were often composed of a small number of canals.

Among other observations on this case, Dr. Ödmansson has the following :—" The case represents myo-carditis acuta, which is rarely observed as primary. Unusually this affection is developed simultaneously with, or during the course of other diseases, as pericarditis, acute rheumatism, puerperal fever, the varying forms of pyæmia, typhoid fever, &c. R. Demme, who has most recently undertaken to write its symptomatology, expresses himself in conclusion like Bamberger: ' That no definite direct symptoms pertain to this disease; that at the bedside it can scarcely

ever be diagnosed with certainty, though in some cases it may, perhaps, with some degree of probability.' The matter becomes much easier when, as in our case, a myo-carditic abscess has opened within any of the cavities of the heart, but even then the diagnosis is combined with the greatest difficulties, We must have followed the development of the disease, observed the symptoms, found that the definite signs of organic disease of the heart produced by the perforation, occurred between two examinations; and lastly, be able to exclude acute endocarditis as the only change. If, on the other hand, we do not get the case until after the perforation, and have no history to rest on, the diagnosis ought scarcely ever to be more than a feeble hypothesis, if no more certain grounds of judgment are discovered than the signs afforded by the heart, which can, at most, prove only that a certain part of that organ is altered, but cannot explain anything with respect to the causes or nature of the change. If, notwithstanding the perforation, no accessory sound is heard, the difficulty remains the same as if no perforation had taken place. The fact that such a sound was wanting in our case must, no doubt, be ascribed to the weak action of the heart, as otherwise the change, being situated so near the aorta, ought to produce a systolic accessory sound. Even if it existed, its importance with reference to diagnosis would, under present circumstances, probably not have been great."

(D) CONCERNING THE ALIMENTARY SYSTEM.

ART. 56.—*Chronic Idiopathic Glossitis.*

By JOHN RICHARD WARDELL, M.D., M.R.C.P., Physician to the Tunbridge Wells Infirmary.

(*Lancet*, May, 1865.)

The following interesting cases are placed on record by Dr. Wardell :—

CASE 1.—M. W——, aged fifty-five, married, had six children, a tall and powerfully-made woman, the wife of a farm-servant, residing at a distance. Stated that until the supervention of this affection she had always enjoyed excellent health. Countenance haggard, dusky, and cachectic. No syphilitic history, nor any suspicion of that disease ever having been contracted. In June, 1862, she began to have pain and a sense of weight and fulness at the epigastrium, which were attributed to indigestion. The appetite began to fail, the general health to be undermined, and she gradually lost flesh. Under these circumstances she was recommended to seek further advice, and with this view she presented herself at the Tunbridge Wells Infirmary, and became an out-patient in the latter part of July following, when the pains in her tongue and throat were, in her own words, "shooting, burning pains." During the subsequent sixteen months she was under the physicians of that institution (which was prior to myself being attached to it), and these gentlemen tried a variety of remedies without much relief. Both regarded the case as one of malignant character, and feared a fatal termination, which from a review of all the appearances was a reasonable

prognosis. This unfavourable opinion being made known to her, and fancying the organ to be still increasing, she was recommended to consult myself. I first saw her November 10th, 1863. She was then emaciated; looked most desponding; spoke thick and imperfectly, as if something were in her mouth; said she had lost two stones of flesh; could swallow nothing but liquids, and dreaded death by starvation. On protrusion of the organ, it was large, as if filling the mouth, pale, dry, convex, smooth, and tense, without fissure or raphé, and appearing as if divested of papillæ, even the V-shaped circumvallate lines being obliterated; sides and tip not notched, red and irregular, as often noticed, and there was a lack of the ordinary secretion in the entire buccal cavity. On taking the organ between my fingers it felt of cartilaginous hardness, and moderate pressure gave lancinating pain, which radiated into the throat and neck. No ulceration nor any marked amount of injection, either in the tonsils, isthmus faucium, pharynx, uvula, or other parts. Submaxillary glands larger than normal, and decided tenderness when moderate pressure was applied to the parotids. On a general examination of the patient, no other signs of disease. Reviewing all the facts of the case and the accompanying symptoms, I was most inclined to coincide with the opinion which had been given—viz., that it was probably malignant. There was, however, the possibility of its being a deposition of lymph, which, as an inflammatory product, had not been absorbed; and, knowing how the iodide of potassium promotes absorption, I ordered two grains of that medicine with ten minims of compound tincture of iodine three times a day; to live on new milk, eggs, cocoa, pounded beef or mutton made into thick soup, farinaceous food, and a moderate allowance of port wine, all of which, she said, would be procured for her; vegetables, cheese, bacon, salt meats, and other indigestible articles being strictly prohibited. She came to see me again in the middle of December. I was then from home, but she left a message saying she was decidedly better. I next saw her January 14, 1864, when at a glance the change in her appearance was most apparent. The tongue was considerably smaller, softer, and the raphé faintly discernible. She could swallow solids, had made flesh, and there was less pain in the tongue and throat. The next time she visited me was March 1st, when she had gained a stone in weight, and in every respect there was still greater improvement. The tongue was almost reduced to its natural size, fissure and the papillæ perceptible, and the organ had lost its preternatural fleshy cleanness, and was covered with a thin creamy coat. When examined between the fingers only a small amount of hardness remained, and the enlargement of the submaxillary and parotid glands had subsided. Knowing that Dr. Milner Bury (under whose care she had been previous to his retirement from the Infirmary) took a deep interest in the case, I informed him of her having come to see me. He examined the organ, and was equally with myself surprised at the result. Medicine continued. I saw her October 18th, when the tongue was quite natural. She had gained two stones of flesh, and was in her wonted good health. At this date is quite well.

I will now contrast with the foregoing an example of chronic glossitis, which, in greater or less degreee of severity, is not uncommon, and which in hospital and dispensary practice is often observed.

Case 2.—J. F——, aged thirty-seven, of nervo-biliary temperament, married, a shoemaker, volume of flesh good, and who to all external appearance was in ordinary health. I first saw him as an out-patient on May 27th, 1864. During the previous eighteen months he had been under

medical treatment. No disease of any of the organs in the thoracic and abdominal cavities, with the exception of some tenderness on palpation at the epigastrium, which was full, rounded, and resonant. Had syphilis sixteen years ago, but not since. Of temperate habits; and, for a person whose employment is so sedentary, had enjoyed tolerably good health. His complaint was a chronically inflamed tongue. On its protrusion it looked broad, flabby, raw, red, smooth, and shining. No irritation from decayed or roughened teeth.* The papillæ were abolished; redness at the tip and edges excessive; sides irregularly notched and knotty, and at these parts, more especially towards its base, small vascular prominences, like injected excrescent growths, were observable. The organ felt soft and flaccid, and the pain described was that of intense soreness, and not sharp, shooting pains. Pharynx, soft pillars of the fauces, and uvula arborescently vascular; mastication accompanied with some dysphagia, and buccal cavity well supplied with normal secretion. Conceiving this to be a case mainly, if not wholly, depending upon gastric irritation, his diet was minutely particularized. New milk, eggs, cocoa, pounded mutton, soft boiled rice, and the various farinaceous foods were allowed; smoking, stimulants, and all indigestible aliments to be rigidly discontinued. Three grains of iodide of potassium and ten minims of compound tincture of iodine three times a day; compound rhubarb pill, as occasion might require. Under this treatment he made rapid improvement; the organ became narrower, the papillæ more elevated, the beefy appearance less marked, and the lateral prominences much smaller. When he last presented himself he said his "tongue was wonderfully better;" and after August 12th he did not think it needful to continue his visits.

Art. 57.—*On the Treatment of Gastric Ulcer.*

By BALTHAZAR W. FOSTER, M.D., F.L.S., Licentiate of the King and Queen's College of Physicians, Physician to the Queen's Hospital, and Professor in Queen's College, Birmingham.

In a lecture on this subject, delivered at Queen's College, Birmingham, Dr. Foster has the following observations:—

"Let us bear in mind this great fact, then, in our treatment of internal ulcers; for we shall find that, in all cases of gastric ulcer, our measures must be chiefly directed to procure rest for the organ—rest from all mechanical irritation—rest from all physiological action.

".Every attempt to digest food in severe cases of this disease sweeps away, more or less completely, the results of that curative process which has been going on during the previous state of rest, and leaves the ulcer, if no farther, still often as far from being healed as ever. Our great therapeutical agent in the treatment of this affection is, I am convinced, 'mechanical and physiological rest;' and as this is more or less perfectly obtained, so we may divide our remedial measures into those which obtain *partial rest*, and those

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* This, a cause of inflammation and ulceration of the tongue, was noticed by Celsus.

which obtain the most *complete rest* at our command for the organ. The milder cases of this malady we may treat by *partial rest;* and this we may obtain by regulating the diet of our patient.

"We must rule, however, both the quality as well as the quantity of the food, and prevent any distension of the organ, while we guard against any irritation of the diseased surface. Simple and well-ascertained physiological laws must guide us in our selection of food. We must recollect that certain forms of nutriment are more easily digested than others; and also that some substances— *e.g.*, protein compounds—specially require gastric digestion. Experience teaches that all food which takes much time and energy to be digested, or which is chiefly transformed in the stomach, proves most irritating to our patients. Animal foods, substances likely to irritate the viscus, hot ingesta, and particularly full meals, must be carefully avoided, as they all aggravate the patient's sufferings, and are frequently expelled. On the other hand, as we naturally might expect, bland food of an easily digestible form, of a cool temperature, and in small quantities, is easily borne. (*Vide* Dr. Brinton, *op. cit.* p. 183, 2nd edition.) In milk we have a fluid meeting all the requirements of the system, and at the same time possessing the qualifications above mentioned—at once the most easily digested and the most elaborately composed food. Sometimes, however, when taken alone, it is rejected; and in such cases it is often retained, if diluted with half its bulk of lime-water. This addition prevents more or less the action of the gastric juice upon it; and thus the milk is often passed into the duodenum, to be there digested. By regulating the quantity, however, we can usually ensure its favourable reception; and in many cases we find that the addition of the purer forms of starch, so as to increase its consistence, renders it much more grateful to the stomach. Arrowroot is the best form of starch to use at first. As the patient improves, corn-flour, sago, tapioca, and rice may be substituted; and thus the advance to more solid food most zealously guarded. The more easily digested forms of fish may be next allowed; and from these a most gradual return to the more ordinary forms of nutriment may be made. The greatest nicety of judgment, as well as the firmest control over your patient, must now be exercised; for a single excess will often produce a most serious aggravation of the symptoms. For some weeks after apparent convalescence must you guard your case; and the necessity of this is very evident, when you consider how easily the newly-formed tissue covering the ulcer may be irritated.

"Such is a brief statement of the treatment by *partial rest,* aided, of course, by such drugs as the urgency of any of the symptoms may require. . . . . In the severer cases of the disease, where the intense pain and tenderness point to probable perforation, where the irritability of the stomach causes all food to be rejected, or where hæmorrhage in large or more moderate quantities indicates quickly advancing ulceration, I would rather have you obey the great principles which I have laid down more completely. I would have you obey, as far as possible, the indications which Nature shows you, and cease to irritate the organ by forcing it to receive food, of which it as

plainly as possible expresses its fear. The most rational and most suc-
cessful treatment in such cases is to give the *most complete rest possible
to the affected viscus by stopping the supply of all nutriment by the
mouth, and supporting the patient for several days by nutritive
enemata.* Perfect quietude in the recumbent posture must be ob-
served ; the lips and tongue moistened from time to time with a
little water ; and everything likely to excite the patient avoided.
The body, thus placed in a position requiring the least expenditure
of material, is easily supported for several days by enemata alone,
even when the weakness of the patient makes the treatment seem
hazardous. For eight or nine days the patient may be kept, if de-
sirable, on enemata—even longer, if necessary ; and during this time
the pain, the irritability of the stomach and of the system, cease ;
and the sufferer enjoys ease, to which he or she has long previously
been a stranger. Far from becoming weaker, patients in general
rally somewhat while under this system. . . . .
  "The substances which I have found most useful for enemata are
milk, strong unsalted beef-tea, raw eggs beaten up in milk, occa-
sionally a little brandy, and generally, in two enemata daily, ten to
twenty minims of tincture of opium.* Feeding the sufferer thus,
you gain for the stomach a few days' rest (generally six or seven) ;
and then the symptoms have so much abated, that the treatment by
partial rest can be adopted with success."

ART. 58.—*Pneumo-cardium from Perforation by a Circular
Gastric Ulcer.*

By Dr. SÄXINGER.

(*Prag. Med. Wochenschr.*, 1, 2, 1865 ; *Schmidt's Jahrbücher*, vol. cxxvi.)

CASE.—The patient, forty-four years old, was admitted on the 30th of
August on account of hæmorrage from the bowels, of which, however, there
was then no evidence. She had been for a long time feeble and unfit for
work, and six days previously had felt unusually ill, with chills and heat,
great thirst, loss of appetite, and stabbing pain in the left side of the chest.
She was of lax, anæmic aspect, with hot skin, the pulse 108, respiration 40,
when lying on the right side, but quicker when sitting up. Standing in
front of the patient, there could be heard a metallic clanging, splashing
noise, isochronous with the radial pulse, and not altered when the breath
was held. Upon auscultation this sound was so loud over the left half of
the thorax that it drowned both the respiratory murmur and the sounds of
the heart. When the patient sat up, it was still perfectly clear, and on the
anterior surface of the chest no cardiac impulse or dulness on percussion
could be discovered. At the back, percussion gave a clear but not tympanic
resonance as low as the 8th dorsal vertebra ; on the right,‡ the sound was
somewhat dull below the angle of the scapula. Besides the peculiar sound,
auscultation showed vesicular breathing at the resonant parts, and, over the
right scapula, pleuritic friction. The abdomen presented nothing remarkable.
The peculiar sound, as well as the sounds of auscultation and percussion,

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* The enemata should be as small as possible, from two to six ounces.

remained unchanged to the last. The decubitus was usually upon the right side. On the 2nd of September the patient complained of acute continuous stabbing pain in the cardiac region, with dry cough ; and soon after had an intense rigor, lasting a quarter of an hour, and followed by heat and great exhaustion. These conditions recurred several times ; and, on the 6th of September, death took place with symptoms of œdema of the lung. It was ascertained that she had suffered for seven years from gastric pains, and that she had thrice vomited blood, the last occasion being nine months before. For some years she had been habitually costive.

The autopsy showed the diaphragm to be level with the fourth rib on the right side, below the fifth on the left. The right pleura contained a pound and a half of fluid ; the pericardium was but little covered by lung, was tense, and of tympanitic resonance. The heart, of middle size, pressed backwards and to the left ; its surface partly coarsely shaggy, partly bilious, and of a dirty yellowish grey ; the muscular tissue friable, light yellow in the outer layers. The peritoneum was pale, smooth, and in the upper parts of a tendinous thickness. The stomach was much constricted at the middle, and at the constricted portion there was a long narrow transverse cicatrix of mucous membrane. The upper portion of the stomach was adherent to the diaphragm, as also the small curvature. Near the cardiac orifice there was a large roundish loss of substance, an inch in diameter ; and at its base an opening three-fourths of a centimetre in diameter, and two centimetres from the cardia. This opening had a smooth sharp margin, and communicated directly with the cavity of the pericardium, through its posterior wall, at a point three centimetres from the apex. The capsule of the spleen was thickened and tendinous, the liver rough on its surface, interpenetrated by tough thickened connecting tissue, and containing two cavernous tumours as large as walnuts.

The author observes that in this case there was an absence of two symptoms regarded as essential by former writers ; namely, cardiac impulse on sitting erect or leaning forwards, and dulness in the præcordial region, due to the presence of the heart and to the fluid ; as also the tympanic resonance over the heart. The circumstance that the clanging sound isochronous with the pulse was as intense in the erect as in the horizontal posture, may be explained by supposing that all the fluid would not escape into the stomach when the patient was erect, because the opening into the pericardium was at a height of three centimetres above its most dependent part.

Art. 59.—*On the Puncture of Hepatic Abscess.*

By Dr. C. Morehead, F.R.C.P., late Principal and Professor of Medicine of the Grant Medical College, and Superintending Surgeon of the Jamsetjee Jejeebhoy Hospital, Bombay.

(*Lancet*, May, 1865.)

In a paper on the pathology and treatment of Hepatic Abscess, Dr. Morehead states that the following are the conclusions at which he has arrived concerning the puncture of hepatic abscess :—

" 1. When the swelling is not larger than an orange, and points conically at the epigastrium, or below the margin of the right ribs,

we should wait for the inflammatory blush on the skin, and then open the abscess with a bistoury sufficiently freely to admit the ready discharge of the contents without pressure. If the abscess has been single, and the strength well preserved, success will generally attend this proceeding. But the question, under these circumstances, of puncturing or leaving the abscess to rupture spontaneously, is practically of little importance. My preference is in favour of puncture.

" 2. When there is *general* bulging of the right ribs below the seventh, with *distinct* fluctuation and pointing at an intercostal space, it is immaterial whether a puncture be made or spontaneous rupture takes place. In both circumstances there will be gangrene of the soft tissues from thinning, and probably caries or necrosis of one or more ribs.

" 3. When the liver occupies the epigastrium, reaches to within an inch of the umbilicus, extends two or more inches below the margin of the right ribs, becomes gradually prominent in these situations, and after a time *obscurely* fluctuating, then premature puncture, either with a bistoury or a large trocar, will lead to irritative fever and gangrene of the soft tissues around the opening from *within* outwards, due to decomposition, from admission of air, of the devitalized unliquefied tissues still adherent to the inner wall of the sac. If, with the physical signs just noted, there be present irritative fever, it is additional proof that the processes which ought to precede puncture are not completed, and that the operation, if undertaken, will be followed by gangrene and death.

" 4. If there be general bulging of the right ribs below the seventh, fulness of the intercostal spaces, and *obscure* fluctuation, then puncture may be made with a small trocar in the manner (with the view of preventing the admission of air) practised by Mr. Cock in paracentesis for pleuritic effusion. As delay in these circumstances is inexpedient, an exploring needle should be used in doubtful cases.

" 5. When prominent extensive swelling at the epigastrium or below the right ribs, with diffuse sense of fluctuation, indicates the existence of a large abscess in the thick part of the liver, we should allow sufficient time for maturation—indicated by increasing tumefaction and tension, with cessation of irritative fever—and then, when fluctuation has become more distinct, we may puncture with a small trocar, observing the same rules in respect to gradual evacuation of the contents, repetition of the operation, and careful exclusion of air.

" The first three conclusions are drawn from ample personal clinical observation ; and if the principles which regulate the pursuit of other sciences are also to be held applicable (as I presume they are) to the science of medicine, then these conclusions can only be set aside by induction from a still larger collection of facts. The fourth and fifth conclusions are suggestions founded on sufficient experience of the failure of other methods of proceeding, and they seem to me to indicate the direction in which advance may be hoped for in the treatment of hepatic abscess by puncture."

ART. 60.—*On Hydatids of the Liver, their Dangers, their Diagnosis, and their Treatment.*

By Dr. MURCHISON, Physician to the London Fever Hospital, Assistant-Physician to the Middlesex Hospital.

(*Lancet*, November, 1865.)

In an elaborate paper read before the Medical Society of London, Dr. Murchison gave the details of twenty cases of this form of disease, including all that had been the subject of post-mortem examination at the Middlesex Hospital during the last eleven years, and others that had occurred in the author's own practice. In the course of the paper, also, reference was made to all the cases recorded in the Pathological Transactions and others in the medical journals. Dr. Murchison pointed out that, owing to the sudden termination of fatal cases of hydatid disease, hospital records hardly gave a fair view of the ratio of deaths from this cause. Although there could be no doubt that an hydatid cyst might become arrested in its growth, shrivel up, and undergo what is called a spontaneous cure, this result rarely happened when the tumour was large enough to be diagnosed during life. In the large majority of cases it went on increasing, and ultimately burst, and when this happened death was the usual result. Attention was directed to the remarkably latent character of hydatid tumours of the liver: in most cases they gave rise to no uneasiness until they had attained such a size as to compress adjoining organs, or until they were on the point of bursting, and peritoneal inflammation was excited on their surface. The directions in which an hydatid tumour of the liver might burst were various. 1. Into the cavity of the chest. 2. Into the peritoneum. 3. Through the abdominal parietes or lower intercostal spaces. 4. Into the stomach or intestine. 5. Into the bile-duct. 6. Into the vena cava inferior. Independently of rupture, hydatids might destroy life— 1st. By compressing important organs and interfering with their functions. 2nd. By suppuration of the cyst, or external to the cyst, and pyæmia. 3rd. By the formation of secondary hydatid tumours in different parts of the body. It followed that the risks to which a person with a large hydatid tumour of the liver was liable were many, and the chances of his escaping them were few. Although the tumour might remain stationary for years, an accident might at any moment cause death. Turning to treatment, little benefit could be expected from medicines. Chloride of sodium and iodide of potassium, the two most vaunted remedies, were of no use. It was difficult to conceive how chloride of sodium could destroy an hydatid, seeing that hydatid fluid always contained such a large amount of this salt, which, indeed, appeared to be essential to the life of the parasite. With regard to iodide of potassium, there was not only no proof that it could cause absorption of an hydatid, but there was positive evidence that the drug never reached the hydatid. Not a trace of iodine could be discovered in the hydatid fluid of a

patient of Dr. Murchison's, who had taken fifteen grains of iodide of potassium daily for several weeks before. Puncture of the cyst was of much greater promise, and had been attended with much success. The dangers were peritonitis and suppuration of the cyst, but by the employment of a fine trocar these dangers might in a great measure be avoided. The error of using a large trocar, or of making an incision with a scalpel, lay at the root of most of the accidents that had occurred. The evacuation of the fluid through a fine canula sufficed to destroy the life of the hydatid. Of twenty cases of hydatid tumour of the liver tapped as described, and collected by the author, all but three had recovered ; and of the three fatal cases, death in one was due to secondary tumours, in a second to a miscarriage, and in the third case the cyst had suppurated, and the patient was moribund at the time of the operation. In all cases, therefore, where an hydatid tumour of the liver was large enough to be diagnosed during life, and was increasing in size, the operation of puncture and evacuation of the cyst in the manner described was advisable. But before resorting to puncture, it was of course necessary to be certain of the nature of the tumour. The diseases most liable to be mistaken for hydatid tumours of the liver were, abscess of the liver, a distended gall-bladder, extensive effusion into the right pleura, an aneurism of the aorta or of the hepatic artery, and cancer of the liver. The points of diagnosis from these lesions were carefully considered, but the author believed that what was called 'hydatid vibration' was a sign of little importance in diagnosis. In a doubtful case, there could be no objection to making an exploratory puncture of the tumour. If the tumour was hydatid, the fluid drawn off would at once reveal its nature, even if it contained no echinococci. Hydatid fluid was clear and colourless as water ; it had a specific gravity of 1009 or 1010 ; and it contained not a trace of albumen, but a large quantity of chloride of sodium : these characters applied to no other fluid in the human body, whether healthy or morbid. If the tumour turned out to be cancer, or even aneurism, there was ample evidence that no harm would result from a minute puncture. The paper concluded with the details of a case under the author's care, where paracentesis had been performed with complete success. The patient at the end of a year was in perfect health.

Art. 61.—*Cases of Acute Atrophy of the Liver.*

By Dr. Stockmajer, Dr. Erichsen, Dr. Hugenberger, and G. Roper.

(Würtemb. Corr. Blatt., Petersb. Med. Zeitschr., and *Lancet,* 1863.)

Dr. Meissner (*Schmidt's Jahrbücher, Bd.* 125) has brought together ten cases of acute atrophy of the liver, recorded by the foregoing authors. Of these we select the following :—

Case 2.—(*Erichsen.*)—R——, twenty-two years old, pregnant for the first time, suffered during pregnancy from repeated attacks of slight icterus.

She was naturally delivered of a living girl, weighing eight pounds and a half, and ten hours after delivery was seized by acute metro-peritonitis, ushered in by shivering and burning heat. The pulse rose rapidly to 134, the temperature to 41·1° C. The next day occurred delirium with sopor, considerable pain in the hepatic region, and icterus of the skin covering it. The lochia were scanty and offensive, and afterwards ceased. On the third morning the jaundice had spread over the whole body. Hepatic dulness was only evident under the last false ribs. Urine coloured by bile ; bowels constipated. Death took place from pulmonary œdema, with complete unconsciousness, and pulse too rapid to be counted, after sixty hours of illness.

Post-mortem.—The skin, subcutaneous connecting tissue, and muscles, were moderately jaundiced, as also the endocardium and the lining of the great vessels. The pericardium contained some icteric clear serum ; the heart itself was flaccid, the valves little changed. The lungs were full of blood, compressed by the greatly elevated diaphragm. The peritoneal cavity contained several pounds of icteric fluid, mixed with abundant flocculi of fibrin ; the peritoneum was icteric, and covered with exudation in the neighbourhood of the pelvic organs. The mesentery, and retro-peritoneal cellular tissue were infiltrated by yellow serum ; the intestines distended by flatus. The spleen was smooth, fourteen inches high, two and a half wide ; its capsule wrinkled, icteric ; its substance softened almost to pulp. The capsules of the kidneys were easily separable ; their surfaces smooth, yellow tinted, moderately vascular ; the cortices thin in section, the Malpighian bodies vascular, the divided urinary ducts icteric, opaque ; the pyramids vascular ; the mucous membrane of the pelvis icteric. Both ovaries were enlarged about three times ; their parenchyma icteric and fatty. The uterus had undergone normal involution ; its mucous membrane icteric. The convexity of the liver was united to the diaphragm by separate pseudo ligaments ; Glisson's capsule icteric, covered by detached spots of effusion, slightly wrinkled ; the liver diminished in all its measurements, being eleven inches broad (right, six ; left, five), five inches high, two inches thick on the right, and much less on the left. Its consistence was diminished, its texture lax and soft ; the section of the right lobe displayed the acinous structure clearly ; the acini were of normal size ; the central veins and the branches of the vena portæ distended ; the parenchyma swollen, opaque, not yellow. The acini of the left lobe were diminished in size, the vessels full of blood, the parenchyma opaque, the acinous structure only in parts distinguishable. The atrophy of the acini was least advanced at the surface of the organ, increased in the deeper parts ; and, in a central mass an inch and a half in diameter, sharply marked off by its ochre yellow colour against the less pigmented portions around, the acinous structure had wholly disappeared, and the tissue was reduced to a homogeneous pulp. The gall bladder contained some bright yellow viscid bile ; the ducts were free. Under the microscope, the acini of the right lobe were of normal size ; the hepatic cells very turbid, full of finely granular fat, here and there destroyed ; the inter-acinous connecting tissue sound. In the parenchyma of the left lobe the cells had undergone fatty degeneration, were often disorganized, and only discernible as aggregations of fat drops or granules. The interstitial connecting tissue displayed towards the middle an increasing fatty degeneration, until, in the patch above mentioned, the whole parenchyma was changed into a fatty detritus. In the kidneys there was icterus and fatty degeneration of the capsule, and epithelium of the tubuli of the cortical substance. Crystals of leucin or tyrosin were nowhere discovered.

Reviewing all the cases, Dr. Meissner observes :—

" Various observers have discovered, in cases of acute atrophy of the liver, extensive hæmorrhages in almost all organs and textures ; while leucin and tyrosin have been found, not only in the liver, kidneys, and blood, after death, but also in the urine during life. Less characteristic, but often present, are pulmonary hypostasis, gastric catarrh, and splenic enlargement ; the latter easily explicable by the obstruction of the vena portæ. Sometimes, also, there is considerable atrophy of the spleen. It is remarkable that, in spite of prominent cerebral symptoms, no corresponding anatomical changes in the brain have been met with.

" From the microscopical and other researches of Dr. Erichsen, it would appear that three different stages of the disease may be recognised. 1. *A stage of transitory swelling of the parenchyma, and commencing fatty degeneration of the right lobe ;* the central veins and portal branches being distended by blood, the acini swollen, and their peripheral and central hepatic cells turbid, finely granular, attacked by fatty degeneration, and partly actually destroyed. 2. *Stage of commencing atrophy in the left lobe.* The fatty degeneration has proceeded further ; a part of the degenerated tissue has undergone resorption, so that the acini are diminished in size, while the interstitial connecting tissue still retains in part its integrity, and preserves the shape and firmness of the organ. 3. *Stage of complete collapse of structure by destruction of the interacinous connecting tissue,* in the place of central softening ; where, after such destruction, the parenchyma falls together into a homogeneous pulpy mass. The process commenced in the centre of the left lobe, extended to its more superficial portions, and lastly, to the right lobe. In cases sufficiently prolonged, complete softening occurred in the last-named portions.

"It is remarkable that in only one of these patients, a man (case 10), could leucin and tyrosin be discovered, and that the intense ochrous yellow colour was only found in the parts of the liver that had undergone *complete* destruction ; a proof that leucin and tyrosin are not characteristic signs of acute atrophy of the liver, and that the pigment cannot be a direct result of the morbid process.

" With regard to the essential nature of the disease, the cases seem to show that Rokitansky's hypothesis of a solution by the bile is untenable. Apart from the fact that the bile does not possess the property of dissolving hepatic tissue, the reported cases show neither retention of bile, nor excessive secretion, nor paralysis of the ducts. The disease seems rather to depend upon a diffuse parenchymatous inflammation, as Wedl, Bamberger, and Frerichs have assumed. Frerichs believed that the inflammatory exudation, in the form of a fatty granular detritus in the interacnious connecting tissue, produced the atrophy by occasioning pressure. Erichsen, on the contrary, does not regard this detritus as an inflammatory exudation, but as a result of disorganization, of which the inflammatory changes in the hepatic cells are the chief cause. The opinion of Frerichs, that the presence of leucin and tyrosin was characteristic, cannot be received without exception ; although these substances

are very frequently observed. Their presence may be clearly ex-
plained, if we assume with Virchow the existence of suppression of
bile. This must necessarily follow from an extensive destruction of
hepatic tissue ; and would leave the elements of the bile in the
blood, to form leucin and tyrosin by their changes, and also to give
rise to cerebral symptoms of a toxic character. The idea of sup-
pression of bile accords with the anatomical conditions ; for in all
cases the gall ducts and gall bladder were almost empty, and the
recently affected parts of the liver were poor in pigment; while the
ochre-yellow of the parts completely destroyed could not be attri-
buted to retained biliary colouring matter, but to pigment developed
out of the disorganized textures.

" The phenomena of the disease may be arranged in two groups.
During life there are at first symptoms of irritation, corresponding
to the post-mortem evidences of hepatitis ; and afterwards appear
the typhous cerebral symptoms, and the hæmorrhages into various
organs, which, together with the formation of leucin and tyrosin,
and with the ochre-yellow colour of the liver, must be attributed to
the complete destruction of the hepatic tissue and the consequent
poisoning of the blood. It seems that a diffused acute parenchy-
matous hepatitis, produced by peculiar and as yet unknown causes,
leads in a short time to complete destruction of the liver, and sup-
pression of the biliary secretion. The retained elements of the bile,
and the products of the hepatic changes, produce an infection of the
blood that leads to speedy death.

" In respect of ætiology, the most frequent occurrence of acute
liver atrophy in women during the period of child-bearing and in
the bloom of life (from nineteen to twenty-eight) is very remarkable.
Nine of the ten cases occurred in women, and in only one of the
nine, in which it appeared shortly after menstruation in a girl of
nineteen, was it independent of pregnancy. Three cases occurred
very soon after delivery ; one case five weeks after, and four cases
were in pregnant women, and each occasioned the birth of a dead
and icteric fœtus. It would seem that, where pregnancy is suffi-
ciently advanced for the fœtus to be viable, artificial delivery would
be indicated at the very beginning of the disease. The life of the
offspring might thus be preserved, while the recovery of the mother
is scarcely possible.

" The connexion between parturition and acute atrophy of the
liver is probably due to puerperal inflammation of the abdominal
viscera, reaching the liver, and producing there the diffuse inflam-
mation that leads to atrophy."

Art. 62.—*Entrance of Lumbrici into the Liver during Life.*

By Prof. G. Pellizzari, of Florence.

(*Lo Sperimentale,* Jan. 1864 ; and *Schmidt's Jahrbücher,* vol. cxxvi.)

Professor Pellizzari has formerly recorded the entrance of
lumbrici into the liver (see *L'Union Méd.* xi. 1857), and now

describes the following case, which is of importance as regards the manner of increase and development of the worms within the organism :—

CASE.—A boy seven years old was admitted into the hospital of St. Maria, at Florence, on the 16th January, 1862, with very acute pains in the right hypochondrium, and with much fever. The liver was enlarged, and very painful on pressure, but there was neither jaundice nor spasm. After an emetic, the child vomited fæcal masses containing moving lumbrici. On the 19th, more worms were vomited, and death took place on the 20th. The *post-mortem* discovered nine fully-developed lumbrici in the small intestines, and sixteen in the enlarged liver (12 males and 4 females), with their tails towards the duodenum or the main gall ducts, and their heads towards the parenchyma of the liver or the terminations of the ducts. Of these worms six were intertwined in the last divisions of the gall ducts, two were partly in these divisions, and partly in the parenchyma of the liver, two in the main divisions of the hepatic duct, while the remaining six had crawled from the duodenum into the common and hepatic ducts. All the ducts were enormously dilated, especially at their terminations, where the worms were intertwined. The walls of the common and hepatic ducts appeared natural, but the mucous membrane of the secondary and tertiary branches was thickened and very vascular, and the channels of the latter blocked up by cylindrical epithelium cells, granular exudation corpuscles, and the ova of lumbrici. These ova, which were also found in the channels made by two of the worms themselves in the parenchyma of the liver, were partly normal, spherical, with wrinkled investing membranes, partly enlarged, with clear distinction of the yolk, and thinned, sometimes even ruptured, investing membranes. In some the yolks were no longer granular, but changed into large fat globules.

The direct passage of lumbrici, from the intestine through the gall ducts, was in this case clearly proved, although the time when it occurred could not be known with certainty. The greater or less penetration of different individuals showed that some had entered earlier than others. It was remarkable that the occlusion of the ducts by the worms was followed neither by jaundice nor by motor or sensorial derangement. The proof which this case furnished, that lumbrici can be developed in the organism, if not in the intestine, yet at least in the liver, is of great importance, and shows that Davaine's opinion, that they were always introduced into the system from without, in food or drink, is not without exception. It would appear also that the development of the ova does not require so long a time as Davaine supposed.

(E) CONCERNING THE GENITO-URINARY SYSTEM.

ART. 63.—*On Two Cases of Intermittent Hæmaturia.*

By Dr. GEORGE HARLEY, Professor in University College, and Assistant-Physician to University College Hospital.

(*Lancet,* May, 1865.)

These cases formed the subject of a paper read before the Royal Medico-Chirurgical Society.

The chief peculiarity presented was, that the urine passed at one period of the day varied from a dark chocolate colour to an almost

purple blackness, whereas at all other times the secretion was to all intents and purposes normal. One of the patients was a medical gentleman who had for many years been resident in a warm climate, where he had contracted malarial fever; the other was a Londoner who had never suffered from any true aguish attack, but in whose case the bloody urine was passed whenever he was exposed to cold. Indeed, according to the patient's own statement, during the last two winters his urine invariably became bloody about an hour after his suffering from cold hands or feet. Both patients appeared to suffer from hepatic derangement, the one whose attack could be traced to malaria being slightly jaundiced at the time the urinary symptom manifested itself. The other, although not suffering from true jaundice, had an exceedingly sallow, bilious appearance.

As regards the pathology of these specimens of urine, the author remarked that had the morning's urine only been brought under the notice of the physician, he could never have dreamt of the existence of any urinary affection; whereas had the midday specimen alone been subjected to his inspection, he could not have failed to suspect the existence of grave organic changes in the renal organs. Neither of these opinions could possibly be correct; the varying condition of the renal secretion clearly pointing to intense congestion of the chylopoietic viscera of a transient and periodic character.

Professor Harley further pointed out the difference between the affection here described and the other form of disease with which it is apt to be confounded—namely, ordinary hæmaturia. The easiest way of establishing a correct differential diagnosis was, he said, that in ordinary hæmaturia the urine is not only coagulable by heat and nitric acid, but contains blood-corpuscles, which gradually become deposited on standing, and have a clear, pale-coloured supernatant liquid. In this form of intermitting hæmaturia, as also in some cases of the non-intermittent variety, the urine, although coagulable by heat and nitric acid, contains few or no blood-corpuscles, and the colouring matter is not deposited on standing, but remains uniformly distributed throughout the liquid. Besides this, the urine contains numerous granular tube casts, and has an increased percentage of urea.

Lastly, as regards treatment, it was shown that while the usual remedies employed in the treatment of hæmaturia failed to make the slightest impression on this form of disease, the employment of mercurials and quinine caused it rapidly to disappear.

Art. 64.—*On Four Cases of Intermittent Hæmaturia.*

By Dr. W. H. Dickinson, Assistant-Physician
to the Hospital for Sick Children.

(*Lancet*, May, 1865.)

The details of these cases were communicated to the Royal Medico-Chirurgical Society :—

" The case most fully reported was that of a man who had frequently been in St. George's Hospital. In the autumn of 1859 he was first attacked with his present complaint. One morning he was seized with shivering, nausea, and pain in the loins; and when he passed urine, he found it was black and apparently bloody. From that time to the present he had often been under observation at St. George's Hospital, and he had been in the hands of all the physicians of that establishment, latterly under the care of Dr. Fuller. He had no constant ailment, but his health was broken by short attacks of hæmaturia. From the beginning of the disorder these had always been of the same character. They owned no other cause but exposure to cold. He usually got up and went to his work apparently well. In cold weather he was liable to be attacked with shivering, retching, and dull pain in the loins, at the same time yawning and feeling disposed to stretch himself. The testicles were retracted, and he had pain passing down the thighs. When he passed urine, it was black and turbid, and was found to be highly albuminous, of great specific gravity, and containing an excess of urea; the microscope showed numbers of dark granular casts, and a dark molecular deposit; no blood-globules had ever been found. The urine retained these characters for two or three urinations. When he got warm it recovered its natural characters; and next day he was well, excepting that he was somewhat reduced by the attack. In continuous cold weather these attacks had come on for several successive days, but they had never lasted through the night. He had never had an attack in the summer; though once, in comparatively warm weather, it was brought on by his washing windows with cold water. Movement had no tendency to produce it; he was always better when taking exercise, as it kept him warm. The man had an anæmic and cachectic appearance. No organic disease could be discovered. While in the hospital many plans of treatment had been tried, but none had appeared to prevent the recurrence of the complaint. Quinine proved inefficacious; mercurials were apparently injurious. While taking blue-pill, he had, for the first time in his life, an attack while in-doors. During the time he was under this treatment he had an attack of pneumonia, which was followed by peculiar symptoms of prostration, which it was thought must have proved fatal, but from which he eventually recovered.

" Three similar cases were briefly reported, two of which had occurred in the practice of Dr. George Johnson, and one in that of Dr. F. Cock, which gentleman had communicated the facts to the author.

" In conclusion, Dr. Dickinson maintained that the disorder was essentially due to an alteration in the blood, a similar state of urine having been found during typhus, and also in man and animals after the inhalation of arseniuretted hydrogen. The points which the disorder has in common with ague were adverted to, but the absence of any periodical tendency and the inefficacy of quinine as a remedy were cited as essential differences. As to treatment, it was considered that as yet the disorder was beyond our reach; the most we

could do was to palliate the effects of the loss of blood. Quinine was believed to be useless except in this respect; while the administration of mercurials, both on general principles and on the experience afforded by the above case, was believed to be detrimental."

Art. 65.—*On Azoturia.*

By Edward H. Sieveking, M.D., Physician to H.R.H. the Prince of Wales, and to St. Mary's Hospital, &c.

(British Medical Journal, June, 1865.)

Of late years it has become the fashion to deny the existence of such a malady as the one to which Dr. Willis gave the name of azoturia. But, if the prominence of a particular symptom may determine the nomenclature of disease, it appears to Dr. Sieveking that the term in question may readily be justified. He has often in conversation discussed the matter with medical friends, and has stated his opinions; but has avoided any publication of them, because, though satisfied in his own mind, he felt that the evidence he had to offer was not as complete as the bio-chemist of the present day demands. The evidence he has to offer is defective in this way: modern analysis requires that, in order to determine the real excess of urea, the urine of twenty-four hours should be collected and measured; without which proceeding it is affirmed that the absolute quantity of urea passed cannot be fixed. Dr. Sieveking has no desire to set any limits to accuracy and minuteness of analysis, and feels assured that perfect correctness can only be attained in the way indicated. At the same time, the practitioner, in dealing with cases in private practice, and especially with cases that are only seen occasionally and at long intervals, is compelled to use comparatively coarse modes of estimating; and, if his statements are made with the necessary reservation, he may hope to advance the truth, though in a less perfect manner than is in the power of those capable of adopting a more perfect method.

Although Dr. Sieveking does not doubt that many cases of azoturia occur among the poorer classes, their maladies generally assume a more tangible character, and until the out-patient system of hospitals and dispensaries is revised, it will be impossible for the physicians to devote that care to their investigation which is necessary for the present purpose. Dyspepsia or anæmia are terms that cover a multitude of diseases, which a greater refinement of diagnosis would readily reduce to some other denomination.

While admitting the imperfection of his analysis, he cannot but think that, if we find a patient habitually passing urine of a high specific gravity, averaging 1030, and not due to the presence of sugar, nor associated with albumen, and proved to contain a very large amount of urea, we are justified in terming his case one of azoturia; the more so, if on close inquiry, no tangible disease can be detected to which the accompanying symptoms are referrible.

It has been Dr. Sieveking's lot to have met with numerous cases of protracted indisposition, accompanied by defective powers of assimilation, irregular indigestion, debility, general and indefinable *malaise* and more or less emaciation, though this not always, in which he held the excessive waste of the nitrogenous tissues, as indicated by the increase of urea in the urine, to be an adequate explanation of all the phenomena. The diagnosis was, in part, attained *par voie d'exclusion;* but after satisfying himself of the absence of all other sources of the morbid feelings of the patient, it appeared that a persistent and palpable feature, such as the one alluded to, would justify the application of Willis's term. Dr. Prout ("On the Nature and Treatment of Stomach Diseases," 1848, p. 94), who gives a description that in most points tallies with Dr. Sieveking's own observations, distinguishes between two forms of the disease; in one of which there is diuresis, while in the other there is an excess of urea without diuresis; and he regards the affection as analogous to diabetes. He considers that he has the strongest presumptive evidence, both from observation and analogy, that, if permitted to proceed unchecked, or if injudiciously treated, it passes into diabetes or some other formidable disease, though he has no positive proof of such termination.

Dr. Sieveking continues: " I have at present under observation the case of a gentleman, in whom there is an alternation of azoturia and glycosuria; though in neither case is there a secretion of urine justifying the term diabetes. The amount passed rarely exceeds three pints in the twenty-four hours; but, while at times the urine is almost solidified by the addition of equal parts of nitric acid, owing to the formation of nitrate of urea, at others it is found to contain a palpable amount of sugar, as confirmed by the examination of my friend Dr. Matthiessen, the lecturer on Chemistry at St. Mary's Hospital.

" I have shown elsewhere, that an excess of urea is, as was already shown by Dr. Prout, a frequent accompaniment of epilepsy—an exhaustive condition which might have been predicated *à priori*, if *à priori* reasoning were of any value in determining natural phenomena. The occurrence, however, is not uniform; in fact, it fails with sufficient frequency to have induced one writer to assert that the characteristic feature of the urine in epilepsy was an absence of urea. Dr. Parkes, in his admirable work on urine, states that he has never met with a case of genuine azoturia, though he admits the possibility of its occurrence, as he quotes a case examined by Dr. Ringer, in which a man who was not febrile, and only appeared feeble, passed no less than 1130 grains of urea in each twenty-four hours, or about three times the average secreted by an adult male. It is of such cases, and not of the coincident occurrence of an excess of urea in other diseases, as in epilepsy, that I am now speaking; and I cannot but think that, were a special series of volumetric analyses undertaken to determine the point, the view originated by Prout would receive more positive support than it yet has, and azoturia would be definitively accepted as a member of the nosological fraternity. It is possible that Golding Bird, who laid what I should

regard as an undue stress upon the presence of oxalates in the urine, because they come and go like will-o'-the-wisps, often spoke of cases of azoturia when he discussed his hobby oxaluria. He admits that, in oxalic urine, the density increases with the quantity of urea, which is often present in large excess. 'Indeed,' he continues, 'I regard the presence of a greater or less excess of urea almost as characteristic of the morbid state of the urine for which I am contending, as the oxalate of lime itself.' ("Urinary Deposits," 1857, p. 241.) "Without controverting Dr. Bird's statement, I may state that, in the cases of azoturia as I have observed them, this balance between oxalates and urea has not presented itself; and, in fact, I may say, that the oxalates have but rarely occurred with the excess of the latter substance.

"The following is a case to which I should apply the term azoturia:—

CASE.—A gentleman, aged fifty-three, but looking much older, consulted me in January, 1861. He had always been very temperate, and had enjoyed good health till after an affray with poachers ten years previously, when he had an attack of jaundice. He recovered from this, and remained well till, four years ago, he became subject to bilious attacks accompanied by irregular action of the bowels. Three years ago, after much annoyance and mental excitement, he suffered from carbuncles on his back. Since that time he had been in bad health; suffering from a feeling of numbness in the left leg, and occasional severe attacks of diarrhœa. He complained of occasional neuralgic pains, and at times entire absence of sensation in the left foot. He walked into my room like a man debilitated by disease, but in no way resembling a paralytic. He complained of having been affected with seminal emissions. I examined him very carefully afterwards in bed, and could find no trace of loss of parallelism or loss of motor power. I could not satisfy myself, by the æsthesiometer, of any material impairment of tactile sensibility; no tenderness of the spine and no abdominal derangement were traceable; nor was there any disease of the rectum or prostate. I commenced the treatment with steel, and the application of an anodyne liniment; and ordered wine, beer, and nutritious food. The patient being a teetotaller, was with great difficulty persuaded to take any fermented liquors. I obtained a specimen of the morning and evening urine before my next interview, when I had a consultation with a leading physician on the case. Both specimens had a specific gravity of 1035, were strongly acid, exhibited no increase of phosphates, and contained neither sugar nor albumen. There were no crystalline forms in either, and specifically no oxalates; but both specimens almost solidified on the addition of equal volumes of nitric acid, by the formation of nitrate of urea. The joint examination elicited no proof of any organic disease; and it was agreed that the case was one of azoturia. The quantity of urine never was large that was passed in the twenty-four hours; it rarely attained to three pints. I find that on one occasion I had the advantage of obtaining a volumetric analysis from Dr. Ringer; and the estimate was seven drachms and a half in the twenty-four hours—an amount considerably above what Dr. Parkes considers the average in the healthy adult. The gentleman remained under my treatment for three years; and improved materially under the administration of mineral acids, opiates, and tonics of various kinds. It was not till after twelve days' observation that I discovered a few oxalates in his urine. In a medical report which I gave the patient at his request, on leaving town, I stated that I regarded the azoturia as the source of debility; and that the drain

caused by a persistent waste of tissue, indicated by an excess of urea in the urine, sufficiently accounted for the anomalous nerve-symptoms to which he was liable.

" I saw the same gentleman again at the end of 1862, when he was passing through London after he had, without medical advice, been taking the waters of Kissingen, and thereby brought on severe diarrhœa. He was naturally weak in consequence ; but the urine presented a specific gravity of 1025—lower than I had ever seen it formerly, and I have a memorandum that it contained but little urea.

" There are many insidious morbid conditions for which we may find an adequate explanation in the urinary secretion, with important hints as to treatment and *regime*. The insidiousness of degenerative renal disease as indicated by the albumen, is a point that can scarcely be too often mooted : and it ·is surprising how often and how long patients continue ailing and complaining of feebleness and want of power without presenting any very tangible symptoms, when an examination of the urine reveals the cause of the anæmia, the weakness, and the apnœa, and at once suggests the proper indication. Although albuminuria is a much more frequent cause of these insidious symptoms than azoturia, still I am satisfied that there are numerous cases of chronic disease going through a weary life, for which the undue waste of the nitrogenous tissues indicated by a high specific gravity of the urine and an excessive proportion of its urea, affords a satisfactory explanation."

ART. 66.—*Tincture of Iodine in Saccharine Diabetes.*

By Dr. BÉRENGER-FÉRAUD.

(*Bull. Gen. de Thérap.*, and *Brit. and For. Med.-Chir. Review.*)

Dr. Bérenger-Féraud has been induced to employ the tincture of iodine in the treatment of diabetes on the recommendation of Dr. Ricord ; and although he has treated only two cases, the results appear to him sufficiently interesting to be recorded. In the two cases described, the treatment was renewed, twice in one, and three times in the other, and always with success. Five drops of the tincture of iodine from the *French Pharmacopœia*, containing eight parts to a hundred of spirit, were given at first, and the quantity was gradually increased up to twenty drops a day, administered in 100 *grammes* of water. At first, the smell of the drug produces a rather disagreeable effect, but at the third or fourth dose the repugnance to its use is very much diminished, and soon disappears entirely ; as was proved not only in the two diabetic cases, but in many others, including Dr. Bérenger-Féraud himself. The physiological and therapeutical effects observed were, in the first place, those which are caused by the gentle action of iodine upon the system ; and in relation to the diabetes, the proportion of glucose, which diminished during the first or second day, again increased

in the urine. The improvement at first obtained remained stationary, and even retrograde, unless the use of the iodine be discontinued; and the author remarked that, under the influence of this suppression of the medicine the proportions of glucose again begin to diminish, at the same time that the urine becomes less abundant. The quantity of glucose in the urine then remains at its minimum for a certain number of days, to augment again, if the patient make any deviation from his regimen, and neglect to follow carefully the hygienic precautions which he ought constantly to observe. The author does not assert that a few drops of tincture of iodine have the power of curing diabetes, or that hygienic or dietetic measures are of inferior importance ; but he thinks that the tincture of iodine is able to cause a rapid diminution in the quantity of the diabetic sugar ; and this action is very valuable, although it may be of a secondary nature. Besides the facts recorded by Dr. Ricord, Dr. Debout, and by himself, Dr. Bérenger-Féraud thinks that the action of iodine in glucosuria is a subject of the deepest interest to pathologists, because on several occasions successful results have been recorded from the employment of substances resembling iodine in their nature—as, for instance, chlorine. Several French and English practitioners, in fact, have recommended hydrochloric acid in the treatment of diabetes, but this acid is, in the opinion of the author, entirely contraindicated in that disease.

Art. 67.—*Arsenical Albuminuria.*

By S. Wier Mitchell, M.D., Philadelphia.

(*New York Medical Journal*, 1865.)

Dr. Mitchell relates the following cases :

Case 1.—In the fall of 1858, C. J. W., aged twenty-three, consulted me on account of disease of the chest. A careful examination revealed the existence of tubercle in both lungs. On the left side there was softening, and all the constitutional signs of tubercle were well developed.

After various remedies had been employed, I began on December 16th to give him the liquor potassæ arsenitis, five drops thrice a day. He failed to return to my office at the time appointed, and I did not see him until January 8th, 1859, when he reappeared, suffering with sore throat, and general œdema, which extended even to his palate. His belly was the seat of obscure fluctuation, and the anasarca was so great in his legs as to oblige him to wear loose india-rubber shoes. There was no disturbance of stomach or bowels, and his general appearance was better rather than worse. At my request he urinated before leaving my office. The urine was of medium colour ; of a sp. gr. of 1026. It was acid, deposited urates on cooling, and contained albumen, as was proved by both the heat test and the addition of nitric acid. The amount of albumen present was not large, but of its existence there could be no doubt. A few very pale tube casts were found during a microscopic examination. There was no blood in the urine. The arsenic was discontinued, and saline diuretics given

freely. The swelling and albuminuria diminished together, and by January 25th both were gone.

A month later, the patient urged me very much to give him the arsenic again, as he felt persuaded that it had been of use. Before complying, I thrice examined his urine without finding a trace of albumen. Somewhat reluctantly I then gave him two drops of Fowler's solution thrice a day, and observing no ill effects after a week, I increased the dose to four drops. His visits to my office were made once a week. Between two of these the œdema suddenly developed, and when I saw him he was breathing uneasily and was singularly swollen. As before, the stomach and bowels were not disturbed by the arsenic. At this period the urine was of a sp. gr. 1023, pale and highly acid. It contained albumen, but less than before. The same remedies were used, except that a full saline purge was employed to relieve the breathing. The albuminuria and the anasarca disappeared together in the course of a few days. About six weeks later I was tempted to repeat the use of the arsenic. During this interval I examined the urine again, and again without detecting albumen, his general health meanwhile improving under the employment of cod-liver oil and corn whiskey. On this third occasion the dropsy and albuminuria reappeared, when the solution of arsenic had been freely taken in twelve drop doses thrice a day for about two weeks. Their coming was, as far as I could judge, simultaneous. The patient died during the following autumn, with his legs a good deal swollen from anasarca, but up to two days of his death without albuminous urine. No later examination was made.

CASE 2.—The second case was one of lepra vulgaris, not of specific origin. The patient, a woman aged forty-two, was by occupation a laundress. She was not dyspeptic, and she had suffered from the skin disease just mentioned during two years. I placed her under the influence of arsenic, giving Fowler's solution in doses of five drops thrice a day after meals with a teaspoonful of bitter wine of iron. At the close of a week the arsenic was increased to seven drops thrice a day. After she had taken this medicine for a month without any marked effect on the malady, and without being in any way disturbed by it, I again increased the dose to ten drops. At the close of eleven days the patient exhibited a slight puffiness under the eyes. At this time, with the experience of the last case before me, I examined the patient's urine on two successive days. It was clear, acid, contained a few crystals of oxalate of lime, and had a sp. gr. of 1023, 1028. Both specimens were passed on rising in the morning.

As the stomach and bowels were in no way disturbed by the remedy, and as the lepra appeared to be yielding, I continued the arsenic as before. The patient failed to return to my office at the usual time, and a day later I was sent for to see her. I found that she had been in bed for two days. The anasarca, which was slight when I saw her a week before, was now so extensive as to alarm me. Her whole body was swollen, and even the palate was œdematous, but she complained of no pain. Her pulse was 120 ; skin hot and dry ; urine acid, sp. gr. (fasting) 1023, medium colored, rather light than dark, and contained albumen in small amount. Upon microscopic examination I found a few very pale renal tube-casts in the sediment. There was no blood present. Active purgation readily relieved the patient of her most urgent symptoms. On the third visit the albumen was no longer capable of detection by heat or acids, but the anasarca was not entirely gone until more than a week had elapsed.

I learned from the patient that she had taken cold the day after last calling upon me, and she had had fever, muscular pains, and catarrh in the nasal passages ; during which the dropsy suddenly increased. The lepra

from which my patient suffered was ultimately cured by the persistent use of arsenic, in very small doses, with iron. Once only a slight amount of œdema reappeared, but, as often happens, was removed without the withdrawal of the arsenic.

On these cases Dr. Mitchell remarks :—"Every physician who has used arsenic must have met with instances of arsenical œdema. Owing, however, to various causes, some of which I have already stated, it is rare to encounter this symptom highly developed, and, in fact, it is not a symptom which can be produced at will, and to any degree we may desire, because, when the mineral is given in large doses, the stomach and bowels usually become disordered before any œdema arises. In other cases the œdema appears, and again leaves the patient, even though the use of the arsenic be continued. Fowler, who gave large doses of the remedy which bears his name, saw œdema in but few of his patients. Supposing, however, the œdema to exist, it is probable that only a small number of œdematous cases would exhibit the secondary symptom of albuminous urine, so that not even in all of the severe cases of œdema arsenicalis shall we be sure to find coexisting the symptom in question. It is possible that the general condition of the patient may determine this question, and that in some instances there may exist in the system precedent causes favouring the development of albuminuria. In fact, albuminous urine has sometimes been met with in lepra and psoriasis, and in the latter stages of tubercle ; nor has its presence in such relations been of necessity due to actual disease of the kidneys.

"I wish to be understood, then, as affirming that in extreme arsenical œdema there may ensue secondarily a slightly albuminous state of the urine."

Art. 68. — On Diseases of Suboxidation.

By Dr. H. Bence Jones, A.M., F.R.S.

(Medical Times and Gazette, July, 1865.)

In a series of lectures on chemical and mechanical diseases and their relations, Dr. Bence Jones treats of certain diseases of suboxidation which are most conveniently classed in the present section. He endeavours to point out a mutual relationship between diabetes, acidity, uric acid, gout, oxalic acid, zanthin, and cystin. The influence of one and the same cause—suboxidation—he states is so startling, and our knowledge of animal chemistry as yet so incomplete, that he does not hope to bring conviction quickly to the minds of all; but he is certain that many and great additions will be made to the evidence of suboxidation which he has given ; and if he had taken diseases of the liver and other organs, he might have multiplied greatly the number of diseases that arise in the body from suboxidation.

Whether his views be adopted or not, a practical gain, he thinks,

will be found if we endeavour by food, by air, and by medicine to produce an increase of oxidation in the treatment of these different complaints. "In a short time," he adds, "probably much more will be known regarding the action of ozone in the body; and he is not of the number of those who think no more of oxidation in health and disease than they are compelled to do by the grand fact that oxygen goes in with the air, and that carbonic acid comes out in the breath as long as the patient lives, and whatever the state of health or of disease may be."

ART. 69.—*Hints towards the Treatment of Uræmia.*

By John C. Peters, M.D.

(*New York Medical Journal*, August, 1865.)

For the basis of his article, Dr. Peters somewhat arbitrarily assumes that the complication of disorders included under the terms uræmia, Bright's disease, and albuminuria, arises mainly, if not exclusively, from the presence of an excess of urea in the blood. He almost believes that urea bears the same relation to albuminuria and Bright's disease that sugar does to diabetes, and urate of soda to gout. In like maner, as almost every grain of starch introduced into the human body passes through the stage of sugar, so almost every grain of albuminous substance that enters the blood, sooner or later, in its way out, passes through the stage of uric acid, and, if thoroughly oxidized, escapes as urea, carbonic acid and water. As want of oxidation of sugar is the cause of the diabetic diathesis, and a want of oxidation of the urates and their consequent accumulation in the textures and the blood is the cause of the gout-diathesis, so is an increased formation and deficient excretion of urea the cause of the uræmic-diathesis. The number of substances that are formed between albumen and urea are vastly more numerous than between starch and carbonic acid; but whatever their number, uric acid is the penultimate, and urea the ultimate product of oxidation. Thus, Neubauer gave 300 grains of uric acid to a rabbit, an amount which would furnish about 255 grains of urea; the rabbit passed an excess of 240 grains of urea, a result which proves that the uric acid was almost, if not entirely, converted into urea and carbonic acid. Wohler and Frerichs found the quantity of urea greatly increased when uric acid or the urates of potash or ammonia were taken; the uric acid was decomposed into urea in the system. Hence it would seem as if some at least of the bad effects of a tendency to uræmic disease might be temporarily stayed if the normally rapid conversion of uric acid into urea could be lessened or delayed. Will acids accomplish this? Simpson thinks that an alkaloidal poison is generated in the blood in Bright's disease, and hence gives acids, especially acetic acid, because the acetates of most alkaloids readily pass out of the body. He believes that he has seen good results from large doses of vinegar. A Dr. Hansen claims to have treated

twenty cases with dilute nitric acid, and to have cured eighteen; only two died, and these are said to have been complicated, one with consumption, and the other with organic disease of the liver; the eighteen cured were all recent cases. The muriate tincture of iron is known to be one of the most useful remedies, perhaps the most useful of all medicines in chronic cases.

In health, urea is so rapidly removed by the renal organs, that only minute traces of it can be obtained in the blood; but if the kidneys become diseased and are no longer fitted to perform their important functions of depuration, large quantities have been detected. If spontaneous vomiting or diarrhœa does not occur, or is not artificially produced, or if free action of the skin does not take place, then epileptiform convulsions, or other nervous symptoms, or œdema of the lungs, or peri or endo-carditis, or pleurisy may arise.

Free action of the skin is very important in uræmia, for, according to Favre, urea is a normal constituent of perspiration. Bird admits that small quantities are naturally removed from the system by the skin, and has found it abundantly in the perspiration of some persons whose kidneys are unhealthy, and absent in others. Hence, when the urea-excreting functions of both skin and kidneys are suppressed, a formidable condition arises, as in dropsy after scarlet fever, and in albuminuria arising from exposure to cold and wet. Many subjects of Bright's disease will be found to have always had unusually dry skins, to have scarcely ever perspired, even in the hottest weather. To such, a soda-bath, made with one or two pounds of sal sodæ in a warm bath, twice a week, is said to be useful. Would not an *acid* bath be better? Neither opium nor any of its preparations should be used as diaphoretics, for they render the urine scanty and cause retention of urea.

Attention to diet is very important in uræmia, but is unfortunately only available in sub-acute and chronic cases, for urea constitutes the form in which a very large, if not the largest quantity of nitrogen is expelled from the system. The diet of a subject of Bright's disease should be as carefully attended to as in the gouty, and a small amount of animal and vegetable albuminous and nitrogenous food only should be allowed. Dr. Peters is confident that he has noticed cases of recovery in which the patient was restricted to a bread and milk diet, with gruel, arrow root, and nothing more substantial than fish; while others, apparently no more diseased, who were fed on meat, beef-tea, and eggs, &c., either terminated fatally or recovered very slowly and imperfectly. Alcohol, tea and coffee, especially the empyreumatic aromatic substance in the latter, diminish the daily quantity of urea. Eggs may prove especially injurious, as both Lehmann and Hammond produced true albuminuria in their own persons, from living exclusively on eggs; but it is true that Lehmann once succeeded in consuming no less than thirty-two boiled eggs in one day. While fasting from *solid* food, the usual amount of liquid being taken, the quantity of urea is, as a rule, at once *reduced*. In some experiments by Moos it fell off 240 grains in 24 hours; in others 216 grains; in others only 135 grains.

Of course a very limited and restricted diet must not be carried out very long at a time, except in quite robust patients. Finally, urea exists in combination with common table salt, i.e., as the chloro-sodate of urea, in the blood and partly also in the urine. Wundt has tried the effect of total abstinence from chloride of sodium ; his urine fell off fully one-half in quantity in five days, and became albuminous the third day. The diminution of the water of the urine was so marked as to lead to the opinion that chloride of sodium may play an important part in the diffusion of fluids. Parkes also thinks this production of albuminuria is a most important observation. It seems to him to support the idea that the freedom of healthy urine from albumen is owing to the albumen during its transit through the renal tissues and epithelium being *rendered insoluble by the action of acids* in the presence of chloride of sodium. It would hence seem important to supply albumin-urious patients with a full quantity, or even an excess of both acids and table salt. Bischoff has also proved that common salt exerts an unquestionable influence in augmenting the excretion of urea.

It is evident that in the treatment of uræmia we should lessen the formation of urea in the blood and system, and increase its elimination from the kidneys, skin and bowels.

Dr. Peters passes to a consideration of the medicines which in-crease or diminish the quantity of urea.

1. *Tartar Emetic.*—Bœcker took $2\frac{1}{2}$ grains of tartar emetic daily for nine days ; the urea was *lessened* about 75 grains in each 24 hours ; the only alteration of any importance in the urine was the diminution of urea. Beigel gave two persons two grains every day for four days, and found the urea invariably decreased about seventy-five grains daily. Tartar emetic is well known to be very useful in acute cases of Bright's disease ; but Ackermann found it to greatly increase the quantity of urea, and apparently proportionately to the size of the dose. It may prove useful both by preventing the forma-tion of urea and increasing its elimination.

2. *Golden Sulphuret of Antimony* increases all the constituents of the urine, and that of urea over ninety grains daily. Parkes thinks that it either increases the elimination of all the constituents of the urine, or favours the metamorphosis of nearly all the tissues of the body, or both. He regrets that this remedy has almost fallen into disuse of late, and that it has been superseded by tartar emetic, especially in chronic diseases.

3. *Muriate of Ammonia* increases all the constituents of the urine except uric acid, which it slightly diminishes ; the daily *increase* of urea was about seventy-four grains, a quantity which indicates a great augmentation of metamorphosis or elimination ; as it lessens the uric acid, perhaps it converts this more rapidly into urea.

4. *Citrate of Ammonia.*—Prout noticed a great increase of urea in the urine of a dyspeptic patient while taking this remedy.

5. *Liquor Potassæ.*—In several cases the amount of urea was increased, and Parkes says this occurred so constantly as to lead to the inference that this alkali really augmented the *formation* of urea. The uric acid was unaffected. Day says little is definitely

known regarding the power of remedial agents in modifying the amount of urea, except that liquor potassæ has been decisively proved by the experiments of Dr. Parkes to increase its quantity. He adds, the experiments of Bœcker, Beigel and others, on this subject, are too vague and uncertain in their results to call for special notice.

6. *Nitrate of Soda.*—According to Schenck, it increases the water of urine and the urea for the first three or four days, when they both fall below the normal standard to an extent which balances the previous increase.

7. *Nitrate of Potash.*—According to Beigel, three drachms given in twenty-four hours diminished the urea slightly in one case, and greatly in two cases. Hence it either lessens the production of urea or prevents its elimination. Parkes, from one ounce given in twenty-four hours, found it to act as a diuretic, and to cause the excretion of an excess of nearly 200 grains of urinary solids.

8. *Phosphate of Soda* diminishes the urea nearly thirty grains in one day when given in 225 grain doses; it is said to retard the digestive process extremely, and diminish the amount of nutriment entering the system. It is not a disintegrating agent, but rather the reverse: it lessens both the quantity of urea and that of the insensible perspiration.

9. *Acetate of Potash.*—Bœcker took three ounces of the Prussian solution of the acetate of potash in four days, and found the quantity of urea lessened about fifteen grains; the urinary water about 440 grains. It lessens the urinary water, urea, and extractives, and the earthy phosphates in a remarkable degree, viz., to the extent of twenty-two grains per day. In another case in which the acetate of potash was taken for eleven days, the urea was diminished over sixty grains per day.

10. *Colchicum* lessens the quantity of urea and uric acid from one-seventh to one-quarter the normal quantity. Garrod found the uric acid generally but slightly lessened. This remedy should prove either very useful or very injurious; in one case I thought it decidedly injurious, or rather discomforting, for it caused nausea and vomiting in very small doses. But in scarlatinous dropsy Dr. Maclagan frequently found colchicum of much service, particularly when the urine became very scanty, and indications were given of approaching coma. He thinks that urea retained in the blood is the cause of the symptoms, and that colchicum causes its discharge. The same writer proposes colchicum in the advanced stages of Bright's disease as a means of depurating the blood.

11. *Belladonna* increases rather than diminishes the quantity of urinary water, urea and extractives.

12. *Quinine.*—Ranke has made the important observation, that twenty grains of quinine lessens very greatly, viz., about one-half, the excretion of uric acid. It does not affect the quantity of urea. There was no increased excretion of uric acid after the effect of the quinine had passed off; hence the formation of uric acid was probably absolutely lessened; as the quantity of urea was not increased, it was, of course, not converted into urea.

13. *Digitalis.*—In a case of cardiac dropsy observed by I. Vogel, 419 grains of urea were excreted before digitalis was given, and 955 grains per day subsequently; in another case the urea rose to 696 grains daily.

14. *Juniper Ointment* increased the urinary water to 114 ounces, and the quantity of urea from 339 to 622 grains.

(F) CONCERNING THE CUTANEOUS SYSTEM.

ART. 70.—*On Animal Parasite Diseases of the Skin.*

By Dr. BALMANNO SQUIRE, F.L.S.

(*Medical Times and Gazette,* August, 1865.)

A very considerable share of the attention of dermatologists both at home and abroad has recently been attracted by those diseases of the skin that depend on the growth of a vegetable parasite in the substance of the epidermis, and of its appendages; and it is in the pathology, diagnosis, and treatment of these affections that our knowledge of the diseases of the skin has of late years made most progress. But, while the study of this division of parasitic cutaneous diseases has been thus advanced, our information regarding the part played by animal parasites in producing disease of the skin has remained almost at a standstill.

The diseases that are produced by epizoa in this country are not only of extremely common occurrence, but are some of them of a most obstinate character. That they are so prevalent is, doubtless, owing to their contagiousness, and their character for obstinacy is due solely to their cause, in the majority of cases, being misapprehended.

Many cases of urticaria (more especially of chronic urticaria), of eczema, of prurigo, of lichen, and of impetigo—or, rather, of diseases that pass by these names—are as distinct in their etiology and pathology, as well as the treatment that they require, from cases of these affections properly so called, as they well can be, since in place of being of constitutional origin, they depend essentially on the presence of an animal parasite on the skin.

Often an acute eruption, having apparently all the characters of urticaria, after being treated steadily and perseveringly as if it were dependent on gastro-intestinal disturbance, is found to remain unchanged, or to have got worse rather than better. No disease is looked on as more hopeless than chronic urticaria, and prurigo senilis has ever been an *opprobrium medicinæ.* These two last diseases, indeed, are well deserving the attention of all who are engaged in the practice of medicine. They are certainly common enough to render it most desirable that their origin and nature should be generally understood; and they are at least severe enough, both as regards the degree of distress they occasion and the space of time over which their course usually extends, to make it advisable that some more

efficient means should be employed for their relief than what are generally thought to be the appropriate remedies for them.

Many of the most intractable cases of eczema and of impetigo of the scalp—intractable only so long as they are treated on the assumption of their being of constitutional origin—may readily and speedily be got rid of; and many ingenious theories that have been broached on the subject of contagious impetigo may be dispensed with if the influence exercised by animal parasites in the causation of these diseases be properly appreciated. Many obstinate cases of lichen, too, if separated in like manner from the category of constitutional affections, would be found more amenable to treatment than they are generally thought to be.

Mr. Squire has observed that cases of acute urticaria are sometimes occasioned solely by the presence of the acarus scabiei in the epidermis, and he is not aware that this fact has as yet attracted the attention of any other observer. When he says that they are sometimes caused solely by the acarus, he is referring to cases where the skin of the person affected, instead of presenting the ordinary appearances of scabies, was covered with a copious eruption of urticaria, which at first sight appeared to be the only phenomenon present, and was unaccompanied by any signs of gastro-intestinal disturbance; where there was no history of any previous attack, or of any of the ordinary causes of urticaria having been present; where, on searching for some other cause, the acarus has been discovered; and where the condition of the acarian furrows has corresponded to the duration of the eruption.

He has also seen cases of urticaria where the cause of the eruption had been ascribed to gastro-intestinal disturbance, but which were clearly produced by the pulex penetrans.

In many cases of scabies, too, he has known a copious eruption of eczema to have formed so prominent a symptom that the cause of it has been mistaken, and the patient treated without success for a chronic eczema, when, if its origin had been rightly apprehended, the course of the affection need never have been prolonged sufficiently to entitle it to the name of chronic at all.

A large proportion of the cases of eczema and of impetigo of the scalp that occur in private, as well as in public, practice are, he has had occasion to notice, due to the pediculus capitis. At least, this parasite is often present; and, where this has been the case, he has found that directly it has been destroyed the disease has ceased without the employment of any further means having been required.

Many cases of lichen are due to the same cause. He refers more particularly to lichen affecting the temples and the upper part of the back of the neck.

The great majority of cases of chronic urticaria that he has met with, and all cases that he has yet investigated (amounting to a considerable number) of prurigo senilis have been due to the pediculus corporis.

In adopting the term prurigo senilis, since he refers to a disease which most commonly goes by this name, he does not mean to imply that the affection is restricted to old persons (though it is certainly

far more common with them than with the middle-aged or young), for he has seen it in a child of four years old. Nor, on the other hand, does he include under the title the various forms of circumscribed prurigo which, nevertheless, occur in old persons, and are regarded generally as equally hopeless with prurigo senilis usually so called.

Prurigo podicis, P. scroti, and P. pudendi muliebris, the author has reason to judge, are totally different in their pathology, and in the treatment they require, from the so-called P. senilis. The local varieties of prurigo, though in many cases a lichenous or eczematous affection happening in these localities, are, in the majority of cases, merely sympathetic with, and symptomatic of, visceral derangement. Thus, if a careful inquiry be instituted, P. podicis will be found to depend on hæmorrhoids, prolapsus ani, fistula or fissure of the rectum, an accumulation of fæces in the sigmoid flexure, dysentery, intestinal worms, or the presence of some other irritating cause in the intestine. P. scroti is in most cases an eczema or psoriasis of the scrotum, while P. pudendi muliebris is generally symptomatic of some abnormal condition of the vagina or uterus.

ART. 71.—*On Ill-Smelling Feet.*

By Professor HEBRA.

In this affection, while the rest of the body shows no unusual amount of transpiration, the feet (and sometimes the hands also) exhibit an extraordinary amount of sweating, accompanied by a most unpleasant odour. In former times this excessive secretion was looked upon as an advantageous circumstance, freeing the blood of a certain amount of "acrimony" which might have given rise to disease; while various affections, the origin of which was obscure, were attributed to its suppression. For this reason, so far from seeking to suppress this secretion, it was sought to encourage it, and to recal it when it had disappeared. That it can be safely and effectually treated, however, the professor is convinced from the results derived from his numerous cases.

First, a few words on the appearance of the parts. The feet and hands of these persons feel remarkably cold, without they themselves being conscious of a deficiency of warmth. In slight degrees of the affection the points of the fingers and toes are alone cold, but in worse cases the whole palm of the hand and sole of the foot, the back of the hand and foot also not being warm, although they do not present that icy moisture felt on the other parts. On looking closely the parts affected are found to be of an intense bluish-red colour, numerous small, shining droplets of sweat appearing at their surface. Moreover, the epidermis of the toes themselves, from long maceration in the secretion, presents a white, wrinkled appearance, like that produced by long-continued maceration in warm water.

In exaggerated cases portions of this macerated epidermis separate, leaving excoriated surfaces, which greatly impede locomotion. With these conditions becomes produced the intolerably fœtid smell which renders the person a nuisance to all around him.

Finding that there really was no effectual remedy known for this distressing condition, Professor Hebra determined to do his best to investigate the nature of the anomaly in secretion, and to discover the means of relieving it. The first question he put to himself was, whether the smell was inherent to or derived from some condition external to the economy, and he soon came to the conclusion in favour of the latter view. In repeated instances the shoes and stockings of persons suffering from stinking feet were taken away from them, and the feet carefully cleaned with soap and water by means of a nail brush. They were then put to bed, warmly covered up, and freely supplied with warm and diaphoretic drinks until a free transpiration was secured. The feet were carefully enveloped in gutta-percha paper, or other waterproof material, so as to prevent the passage of the sweat. The sweat of the entire body, though having its acid odour, did not manifest anything of the stinking character; but when the waterproof coverings of the feet were left unchanged, the penetrating stink was gradually produced until it predominated. The shoes. which had been kept away from these persons, retained for weeks the filthy odour. The expression "stinking foot-sweat" is, in fact, an incorrect one, the proper one being "stinking shoes produced by an excessive production of sweat." The influence of stout, thick shoes as a proximate cause of the odour is seen in the facts that copious sweating of the hands is not attended by ill-smell, evaporation not being impeded, and that persons going barefoot and women who wear thin shoes are seldom liable to it.

The indications for treatment are leaving off the shoes which have induced the stink, and the application of means which have been found by experience capable of diminishing the excessive secretion. In slight cases it suffices to dust the insides of the stockings with some simple powder—such as lycopodium, alum, or even common flour. If this simple means fail, the following may be employed with certainty of success:—Some diachylon is to be gently melted over a fire, and then an equal weight of linseed oil is to be added, so as to form a homogeneous ointment. This is to be spread on linen, in which the foot, having been thoroughly washed and dried, is to be completely and exactly enveloped. Where the toes come into contact, shreds of lint covered with the ointment are to be interposed. So wrapped up, the foot is to be covered with a stocking and a light shoe, well open at the instep. At the end of twelve hours the application is to be removed, and the foot is to be well rubbed by means of a dry towel or one of the powders mentioned before, but neither washed nor bathed. It is then to be covered up with the ointment again. This procedure will be required to be repeated, according to the intensity of the evil, during eight or ten days, but the patient meanwhile is enabled to go about his ordinary occupations. After this time the ointment is to be left off,

but friction by means of pulverulent substances is to be continued a while longer, and the ordinary shoes worn. After some days, brownish-yellow portions of epidermis, about half a line in thickness, separate from the affected parts, leaving a white, clean, healthy epidermis behind. It is only after this separation has taken place that washing the feet or the use of a foot-bath is to be allowed ; and for some time afterwards the pulverulent substances should still be rubbed into the foot. In this way, at the end of from fourteen to twenty-one days, the foot-sweating either disappears for ever, or, at least, for one or more years. In quite exceptional cases, to secure this end, a repetition of the above procedure for a second time is required; but then it is invariably successful. Professor Hebra has, during fifteen years, employed in several hundred cases this with success, and without the least attendant disadvantage.

[M. Stanislas Martin (*Bull de Thérap.*, t. lxv., p. 143) observes that some of the applications employed for removing this disgusting infirmity are not always harmless, the arrest of transpiration having in some cases been followed by neuralgia, disturbance of the digestive organs, &c. The diffusion of the abominable stink may be effectually prevented by placing a sole containing a layer of powdered charcoal either between the foot and the stocking, or between the latter and the shoe. A paste composed of forty parts of powdered charcoal, forty of water, and fifteen of gum, should be thickly spread over a piece of filtering-paper, flannel, felt, &c., stretched over a board or pasteboard. The paste is then covered over with another piece of paper, which is to be smoothed with the hand so as to remove all asperities. The whole is submitted to compression during an hour, after which the water is allowed to evaporate. When quite dry, the sole may be cut out of the required size. Being so cheaply made, these soles can be changed once or twice a day, if required.]

Art. 72.—*Cases of Sklerodermia.*

Collected by Dr. Kretschmar.

(*Schmidt's Jahrbücher*, vol. cxxvi.)

Dr. Kretschmar has brought together, from various sources, eight cases of the rare skin-disease described by Thirial as *Sklerema adultorum;* and since it has been observed also in children, he suggests "Sklerodermia" as a better name. Some of the patients were suffering from organic diseases, which in three of them terminated fatally, others were apparently in good health. The point of resemblance between them was the existence of so much thickening and induration of the skin in various parts of the body as to impede or prevent the natural movements of the parts covered by it, and this thickening was in some cases a result of hypertrophy of the connecting tissue, in others chiefly of the elastic fibres ; so that the affected skin came to resemble the inner coats of the great arteries. The prognosis is so far unfavourable that the disease is

usually of long duration, and very little under the influence of treatment; but when uncomplicated, it has little or no tendency to a fatal termination.

Art. 73.—*Treatment of Alopœcia.*

By M. Hardy.

(*Gaz. des Hôp.*, and *Med. Times and Gaz.*, Sept. 1865.)

M. Hardy lays down the following as the mode of treatment :—
1. *Congenital Alopœcia* is above the resources of art; but general tonics, sulphurous baths, and local irritants may be tried. 2. *Idiopathic A.*—At a certain time of life the hair falls; but this period may be retarded by frictions with spirit of balm or rosemary, lotions of rum or brandy, and ointments composed of tannin or gallic acid, these last being especially indicated in individuals who transpire much by the head. Tincture of cantharides, castor-oil with beef marrow, or spirit of ammonia, or other of these means, the operation of which is aided by keeping the hair closely cut. 3. *Symptomatic A.*—In chloro-anæmia and in anæmia due to serious diseases or delivery, the general debility must first be combated by strengthening means, such as iron, and quinine, and suitable food, and then the defective viability of the hair follicles must be stimulated by irritant ointments or lotions consisting of alcohols, castor or croton oil, or gallic acid. The following is the ointment M. Hardy has found most useful :—Beef marrow, 60; castor-oil, 30; gallic acid, 3; and tincture of rosemary, 5 parts. When the alopœcia is due to an affection of the scalp itself, stimulant ointments only increase the fall of the hair; and in this case we must not pay attention to the alopœcia itself, but pursue the treatment of the disease of the scalp, and when this is remedied, the hairs will grow again. The same observation may be made with regard to alopœcia due to parasites. When alopœcia is persistent, and becomes in some persons the source of diseases, we can only treat it by palliatives, such as caps or wigs, which are excellent prophylactics against coryza, bronchitis, and pains in the head.

PART II.—SURGERY.

SECT. I.—GENERAL QUESTIONS IN SURGERY.

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Art. 74.—*Observations and Cases setting forth the Advantage to be derived from the Decided Use of Caustics in Certain Surgical Diseases, more particularly those affecting the Bones and Joints.*

By Frederick Kirkpatrick, M.B., Fellow of the Royal College of Surgeons of Ireland, and Surgeon to the Hospital Wards set apart at the North Dublin Union for the Treatment of Surgical Cases.

(*Dublin Quarterly Journal of Medical Science,* August, 1865.)

Mr. Kirkpatrick is desirous to direct attention to a more extended and freer use of a well-known remedy. A large number of chronic cases of disease seek relief at the North and South Dublin Union hospitals, where in general they remain the subjects of lengthened observation. Mr. Kirkpatrick has held the post of surgeon to the North Union Hospital for the last twenty-five years, and has thus had full opportunity of testing the effects of treatment.

"I have," he writes, "obtained such rapid and excellent curative results from the use of caustics, particularly of the potassa cum calce, that I am induced to lay a brief statement upon the subject before the profession, and to detail some cases where the use of caustic, combined with incision, in the treatment of diseased bones and joints, was attended with remarkable success. For many years I have preferred the practice of opening all chronic abscesses by means of caustic, first making an eschar, and then opening the abscess by a small crucial incision through its centre, and in the case of large abscesses making two or three eschars, and an opening through each. I have also found great advantage from its use in the treatment of scrofulous abscesses, and sinuses in the neck, groin, and axilla, also in fistulous disease, in anthrax, and in many cases of ulcers, particularly those of a phagedenic character. The principle of combining incision with caustic, which was followed out at the Middlesex Hospital in the treatment of cancerous diseases by means of chloride of zinc paste, first suggested the idea to me, and I have constantly since had recourse to the practice, both in the use of the chloride of zinc in cases of cancer, and of other morbid growths, and of the potassa cum calce in diseases of the bones. With the aid of incisions I have thus been enabled to deepen the

slough from day to day, and extend its action as deeply and fully as necessary. I have in this manner treated several cases of disease of the carpal and tarsal bones, and of the smaller articulations of the hands and feet. I have also derived much advantage from the practice in cases of necrosis of old standing, in which I used the caustic freely, converting the small fistulous orifices into large funnel-shaped ones, and again and again, at intervals of a few days, carrying its action deeply down to the diseased bone. In some cases the sequestra have been thus divided and easily extracted in portions through the enlarged openings, in others the caustic has induced such a formation of plastic material that the cases have got well without the visible escape of any particles of magnitude. This treatment recommends itself very strongly in a large class of patients, where, from broken down health and the co-existence of organic disease of internal organs, operative proceedings are so unpromising.

" The efforts made by nature to repair disease, so wondrously perfect in wounds and fractures, and, I may say, in nearly all the more acute cases of surgery, are often most ineffectual and tedious when directed to relief of diseases of the bone. Frequently do we see a patient worn down by hectic, in consequence of a caries, of probably small extent, in the bones of the sternum or scapula, or in one of the pelvic bones ; abscess after abscess has formed, small particles of bone have at intervals been washed out of the fistulous openings by the wasting discharge ; but after years of suffering the patient is still unrelieved, and the diseased bone is so surrounded and enclosed by a dense, highly-organised, and vascular structure, that any surgical proceeding to reach and remove it with the knife is attended with great difficulty, and considerable loss of blood. In all such cases the treatment I propose offers a prospect of speedy relief. In particular I advocate its use in caries of the carpus and tarsus, where excision has not met with the same measure of success that its use in the larger joints has been attended with ; you can attack each diseased bone separately, boldly boring down to it with the solid stick of caustic, and stimu- lating its diseased structure to take up a healthy action. In this manner two or three openings can be made, extending deeply down into the diseased bones, without inflicting any serious injury either on the blood-vessels or the tendons ; the latter can usually be seen when the sloughs have come away, and if the openings are made of sufficient size the bone can also be seen, and examined with a view to the removal of any loose portions.

" The number of bones entering into the construction of the wrist and ankle joints, and the communication between their synovial sacs, has always created a reluctance on the part of the surgeon to interfere by operation ; and where excision has been attempted extension of disease has been more frequently the result than cure, and in too many cases dangerous con- sequences have ensued from tetanus, pyemia, or the spread of unhealthy inflammation ; consequently the generality of surgeons have been satisfied to trust such cases to the treatment by

iodine, rest, and constitutional remedies. The length of time that such a case may last, and the very imperfect hand or foot that remains to the sufferer when consolidation is at last attained, are but too well known to all surgeons. The *Lancet*, March 25th, contains an interesting paper by Mr. Joseph Lyster, of the Glasgow Hospital, on this subject. He, after commenting on the unpromising results of partial operations on the carpus, recommends the removal of the entire carpus, together with the articulating extremities of the radius, ulna, and metacarpal bones, taking away fully two and a half inches from the length of the limb. Mr. Lyster gives several cases of this operation which he performed, that will repay perusal. His operations were formidable ones, and the resulting limbs must have been very considerably altered from their original fair proportions. His paper at all events proves the truth of my proposition, that partial excision of the carpus is not looked upon as a promising operation, and gives me confidence in proposing to the profession the treatment by caustic and incision, aided by well-considered methods for attaining perfect rest to the affected limb. I by no means wish to revive the use of the superficial caustic issues over diseased joints, as I believe it to be a source of hectic and additional waste, and a practice that has been, in consequence, properly abandoned; but used in the manner I advocate, for the destruction of diseased and undermined integuments, for the opening up of sinuses and fistulous communications with diseased bone, and for the breaking up and stimulating of the carious portion of the bone itself, it is a remedial agent of great potency, and one which I can speak of with the fullest confidence. When brought in contact with carious bone it does not produce much pain, but its action on the skin and soft parts is attended with so much suffering that chloroform should always be administered; however, as the application occupies so short a time, and the resulting pain is so soon removed by cold water, it is not necessary to push chloroform to any extent.

" In conclusion, I beg to express my expectation that this mode of treatment will be found equally applicable to the diseases of the larger joints, in all cases where the disease commences in their articulating extremities, and I fully purpose making trial of it whenever I meet cases that present the symptoms of inflammatory action going on either in the great trochanter or in the heads of those bones which form the elbow and knee-joints."

Mr. Kirkpatrick concludes his paper with the details of several cases confirmatory of his opinions.

ART. 75.—*On Contusion and Contused Wounds of Bone.*

By Dr. JOHN A. LIDELL, M.A., Surg. U. S. Vols., Inspector Med. and Hospital Department, Army of the Potomac.

(*American Journal of Medical Sciences*, July, 1865.)

Dr. Lidell discusses the pathological history of contusion of bone, and gives an account of thirteen cases which came under his obser-

vation during the recent American civil war. The results of these cases he sums up as follows :—

"With respect to their causation, in six of them the injury of the osseous tissue was produced by spent bullets, and in each of these six cases the bullet either lodged or was accidentally withdrawn through the orifice of entrance ; five cases were hurt by glancing bullets ; one was injured by a grazing bullet ; and one by the kick of a horse. It is fair to suppose, also, that in at least some of the six cases wounded by glancing and grazing bullets, the projectile was not moving at anything like its maximum rate of speed. Now, this coincidence between the occurrence of contusion of bone and a greatly diminished velocity on the part of the projectile inflicting it, is certainly remarkable. It is also a fact of practical value to the military surgeon. It will lead him to anticipate serious consequences in all cases where a spent bullet has struck a bone, and to make timely preparations to meet them.

"With regard to the influence of the state of the constitution upon the results of contusion of bone, it should be stated that all of our cases occurred in the persons of soldiers in the prime of manhood, and free from constitutional taint in any form, that none of them were old or otherwise broken down, and that but three of them were at all debilitated at the time of injury.

"With regard to the results, it should be stated that, of the thirteen cases (this enumeration of course embraces the one kicked by a horse), one suffered amputation of the thigh, five died, and seven made more or less complete recoveries. This certainly exhibits a high rate of mortality, and serves well to illustrate the serious character of the lesion.

"It has been stated incidentally that the pathological conditions of the bone produced by contusions are apt to be masked by the swollen and inflamed state of the overlying soft parts, so that the osseous lesion may escape notice for some time. This happened in no less than three of our cases, and it should serve as a warning to all surgeons to be vigilant while treating this class of cases.

"The facts and observations set forth in the preceding pages have shown at least some of the serious consequences which are produced by contusion of bone. It could scarcely be expected that all of them would be successfully pointed out by any one surgeon, however extensive his experience in osseous pathology may be. But enough has been shown at least to indicate that any injury of bone in the nature of a bruise, however trivial it may appear to be at the time of infliction, may be followed by serious consequences, which it is the duty of the surgeon to anticipate and ward off if possible."

ART. 76. — *On Pyæmia.*

By Dr. KRACKOWIZER.

In a paper read before the New York Academy of Medicine (opening a special discussion on the subject) Dr. Krackowizer advanced the following propositions concerning pyæmia :—

"1. Pyæmia is not the result of the admixture of pus with the blood.

"2. The metastatic abscesses produced by emboli from venous thrombi are not pyæmia.

"3. Pyæmia and septicæmia are different diseases.

"4. Both occur frequently together in the same individual.

"5. Pyæmia is an infectious, specific disease.

"6. The infectious substance is either produced in the diseased individual, or,

"7. By pyæmic miasma generated outside of the patient.

"8. The name of pyæmia should be abandoned, and that of purulent diathesis substituted."

Of the arguments in support of these propositions the following may be quoted :—

"The old theory of the absorption of pus by an open vein, already stated by Boerhaave, and again revived about thirty or forty years ago by Ribes, Maréchal, and Velpeau, I believe is so utterly given up, that I need not refute it extensively. A vein, open by rigidity of its walls, and in communication with the circulating blood, would bleed and most effectually prevent the intravasation of matter.

"After having refuted the origin of pyæmia from admixture of pus with the blood, we must consider now another theory, at the basis of which lie the changes venous thrombi frequently undergo.

"In the veins we often find thrombi, the result of spontaneous coagulation of blood, or the effect of phlebitis. In the latter case we do not understand the formation of the thrombus in the sense of Hunter, or Cruveilhier, or Rokitanski, but in the sense in which Virchow has explained it. An inflamed vein, by the deposition of the inflammatory products in its walls, loses the evenness of its inner surface, because the epithelial layer following the inequalities of the coats exterior to it shows irregular prominences and recesses. In this way the friction of the circulating blood is increased, and the velocity of the current is retarded—circumstances favouring the deposition of layers of fibrin, which, including cruor, gives rise to the formation of the thrombus, either entirely blocking up the lumen of the vessel, or narrowing it by lateral adhesion.

"If this thrombus is not organized, it becomes drier, paler, and finally softens. If the softening is very gradual, and not disturbed by mechanical influences from outside—for example, muscular action—the disintegration produces a molecular detritus which mixes with the blood, and being germane to its constituents, does

not produce any deleterious influences. If larger pieces are detached, they are carried by the venous current into the heart, from thence into the pulmonary artery, and bring up at a branch which they cannot pass, obliterating it partially or totally.

"It depends entirely upon the size of the embolus what its effect will be.

"For our object we are interested only in the smaller emboli that block up smaller branches of the pulmonary artery, distributing, for example, in a lobule of the lung.

"Their effect can be studied experimentally by inserting pieces of convenient size into the jugular vein of animals.

"If they are made of a material not irritating chemically or mechanically, like caoutchouc (Virchow) or wax (Panum), and if not too large, they are borne without any symptoms. The capillaries fed by the artery which they block up are filled by degrees per anastomosin, and the bodies themselves are spun in like any other foreign body that does not produce suppuration.

"If, however, substances are selected having a rough surface, like cork, or chemically irritating, like pieces of muscle or fibrin, they set up inflammation in the artery and surrounding tissue more or less violent, with the termination in suppuration or gangrene. We have then very nearly a counterpart of the metastatic infiltrations and abscesses that form such a common *post-mortem* result in pyæmic fever.

"Sometimes in pyæmic fever cases, in the midst of the lobular abscesses of the lung, small emboli are found, evidently not of local origin, but by their discoloration and dryness resembling the thrombus that may be found in a vein, inflamed or not, coming from a suppurating wound.

"The more enthusiastic pupils and followers of Virchow (for he never dreamed of such a thing) thought that with the emboli and the metastatic abscesses the whole difficulty of pyæmia was solved.

"But just as little as we have seen that healthy pus mixed with the circulating blood does produce pyæmia, just as little does simple embolism create metastatic abscesses ; nor are metastatic abscesses and the disease called pyæmia identical. Only to state one point of difference : The symptoms of pyæmic fever are declared before the hæmorrhagic infarctions or the lobular pneumonias have commenced.

"We are then forced to recur to a certain chemical alteration of the thrombus, of which the embolus is a part ; and, indeed, we see in a wound with unhealthy suppuration that the process of ulceration reaches the veins, which are thrombosed, that the veins then become discoloured and ulcerating, and that the thrombus is impregnated with the unhealthy tumours, broken down and mixed in the cavity of the vessel with a sanious liquid.

"Yet the cases must be exceedingly rare in which the blood comes in immediate contact with a decomposing thrombus as described, because higher up it is generally sequestered by fresh coagulations, and thereby the circulating blood shielded from its deleterious contact.

" Failing, then, to find the cause of pyæmia in admixture of pus *per se* with the blood, and unable to explain it, barring very exceptional cases, by the impregnation of the blood from a decomposed thrombus, we have to seek for another cause, and we near (in surgical cases) the *wound as a total*, and the changes which may occur in it during the process of suppuration.

" When I limit myself to surgical cases, I beg not to be understood as if pyæmia in obstetrical cases acknowledged a different origin.

" Either they are by the wounded inner surface of the womb, or wounds at the os or in the vagina, identical with surgical cases ; or, when not showing unhealthy action in their wounded parts, they are under the operation of the same agencies that produce pyæmia in surgical cases without corresponding deterioration of the aspect of the wound.

" Very rarely, except in hospitals, pyæmia occurs in patients whose wounds are in full reparative progress. Generally only part of the wound is granulating, while in other parts the preparatory steps to healthy suppuration are not yet finished. The surface of a wound, for example, of an amputated limb, may show healthy suppuration, while in its deeper layers there are still undetached particles of necrosed tissue, decomposing bloodclots, pent up matter, or ulcerative tracks. Air and moisture being present with the temperature of the blood-heat, all necessary conditions for putrefaction exist. *Along with suppuration there is putrefaction.* Virchow has urged, very properly, that while observers have laboured so ingeniously and hard to explain the entrance of matter through those veins which are no mere part of the apparatus for general circulation and mere repositories of coagulated blood in its different transformations—and, as I admit, sometimes of pus—they attached so little importance to those venous branches that are still connected with the circulation and to the lymphatics. Both these vessels may absorb liquid substances, the product of suppuration, ulceration, and sloughing in the wound.

" If part of the body, either primarily or secondarily, by excessive or insufficient reaction, becomes gangrenous, we often see patients seized and carried off in a very short time under symptoms of so-called *septicæmia*. That septicæmia is owing to the absorption of putrid substances nobody doubts. Since Gaspard and Magendie, all experimenters are agreed that the injection of putrid liquids is *always* followed by the same alterations in the living and dead body, and that these are identical with the symptoms of septicæmia in man.

" But, again, septicæmia, how different from pyæmia !

" It might be said that as the introduction of putrid fluids produces septicæmia, so the same fluids in smaller quantity or in a more diluted state might produce pyæmia, so that pyæmia might be looked upon as septicæmia of a less deleterious character.

" But we know that if only a small quantity of putrid substances comes in circulating blood, animals recover without having first gone through pyæmia.

" It is true that we know, thus far, very little of the chemical

changes produced by putrefaction. There are, probably, a great number of products, varying more or less in their chemical constitution. But they all—whether derived from animal or vegetable substances, or more or less penetrating stench, of more recent or older date—when injected in the veins of animals, produce the same effect : septicæmia, fatal or not, but never pyæmia.

"*If, then, a patient not exposed to miasmatic influences, and having a suppurating and ulcerating wound, is taken with pyæmia, we are forced to think that the cause of pyæmia, originating in the wound and transmitted to the blood in no other imaginable way than by absorption, must be a specific one, just as distinct as the product of hospital gangrene, for example.*

"We cannot help supposing that ulcerating and sloughing wounds sometimes produce an infectious substance, which, when absorbed, works such changes in the constitution as are marked by a characteristic fever of a typhoid type, and inflammations in different parts with an invariable tendency to suppuration.

" All this constitutes a disease as distinct and specific as typhus, diphtheria, scarlatina, and other zymotic diseases.

" The analogies are many and very near. I allude, for the sake of brevity, to the disease in horses and asses, very nearly allied to pyæmia—the maliasmus or glanders.

" I have chosen, for example, a case of sporadic pyæmia.

"The zymotic character of pyæmia only becomes more patent when we consider it in its epidemic character.

"It is almost superfluous to state the fact, so well known to hospital surgeons and obstetricians, that the accumulation of patients with large suppurating wounds produces a pyæmic miasma, which affects patients exposed to it, so that comparatively slight lesions are followed by pyæmia.

" Every surgeon of experience knows that the effect of hospital air on the attendants in typhus wards, in wards where patients with diarrhœa or dysentery are crowded, does not compare with that in wards where a large number of suppurating and sloughing wounds are congregated. No stench from the innumerable stools of diarrhœic patients produces in so short a time the paleness of face, vertigo, want of appetite, oppression in the precardiac region, the nausea, vomiting and purging (always followed by relief), as the exhalations from many suppurating and sloughing wounds. Undoubtedly the pyæmic miasm constitutes only a partial cause of these effects, and there are besides it many other emanations of a non-specific character. Some military surgeons, like Pirogoff, and in part Strohmeier, have gone so far in assuming, that whatever disease, even dysentery, Bright's disease, tuberculosis, some forms of hospital gangrene, septicæmia, hectic fever, if only originating under the protracted influence of pus-vapour, were pyæmic diseases. This is the other extreme, where impressions from so one-sided hospital experience branch off as far from truth as the views of the mere pathological anatomist or the physiological experimenter, that have no hospital experience to prevent their generalizing facts, which are only part or complication of the disease."

Dr. Krackowizer adds :—

"What is most desirable in the further investigation of pyæmia are experiments, studying the effect of pyæmic blood on healthy animals, and chemical analysis of the secretions of wounds of pyæmic patients, with a view to find the pyæmic miasma. We might then hope to be nearer the possibility of preventing the disease, or of exterminating it when in existence."

ART. 77.—*Cases of Injuries of the Nervous Centres, from Explosion of Shells, without Wound or Contusion.*

Reported by GEORGE BURR, M.D., of Binghamton, N. Y., Professor of General and Special Anatomy in Geneva Medical College, and formerly Surgeon U. S. Volunteers.

(*New York Medical Journal*, September, 1865.)

Dr. Burr records the following cases, which he thinks appear to establish the fact that symptoms indicative of serious injury to the nervous system may be met with without the body receiving either wound or contusion :—

CASE 1.—Captain R. P. W., Assistant Adjutant-General of General Bartlett's brigade, First Division, Sixth Corps, during the attack on our line at Charles City Cross Roads, Virginia, was severely stunned by the explosion of a shell in his immediate vicinity. I did not see him immediately after the occurrence, but when he came under my notice there was hemiplegia—the paralysis extending not only to the inferior and upper extremities, but also to the muscles of the neck and tongue. His articulation was difficult, his tongue thick, and his voice much changed. He was granted leave of absence to come to this State, and while *en route* for home his symptoms seemed to be aggravated and the paralysis to increase. It was several months before he was sufficiently restored so as to be able to resume his duties.

CASE 2.—Adjutant G., of the —th Regiment N. Y. S. Volunteers, experienced a similar casualty on the same day, a shell bursting near him. He rode to where I had established a temporary field hospital, and, although retaining his seat in the saddle, he was in a great measure helpless. I assisted him to dismount, and to a place where he could lie down. He appeared stunned and bewildered, unsteady in his movements, and half unconscious of his whereabouts. The fire of the enemy, after awhile, made it necessary for us to remove from the place we were occupying, when I placed Adjutant G. upon his horse, and he rode to the rear. I have never seen him since. I subsequently learned that he made his way to the James River, and, without obtaining leave of absence, went on board a transport and left for his home in this State. In due time his absence was noticed, and he was directed to return to his regiment; but no considerations could induce him to do so. He disregarded all his obligations as an officer, forfeited a well-earned reputation, and was finally dismissed the service for continued absence without leave.

CASE 3.—The following account has been kindly furnished me, at my

request, by Captain M. B. Robbins, 109th Regiment N. Y. Volunteers. The detail of the symptoms, and the abnormal sensations which he describes, will readily be recognized as coming from injury of the nerves :—

" I was injured about three o'clock P.M., June 2nd, 1864, at or near Beth-saida Church, Virginia, by the explosion of a $3\frac{1}{2}$-inch shell, five or ten feet above my head. We were supporting a battery in third line of battle. I was lying partly on my face, partly on my right side ; was carried to the rear insensible, where I remained until eight A.M., June 3rd, when I awoke, as I supposed, from a good night's rest. I saw several persons near me, their lips moving. I could hear nothing. Attempted to rise ; found myself helpless ; when I experienced a pricking sensation in my right leg and arm, severe pain between the shoulders and through the upper part of the lungs. I saw a member of my regiment at a distance ; tried to speak ; did so with great difficulty ; a soldier called to him for me ; he came to my assistance, and had me taken to the field hospital, where I remained until the 6th ; then was sent to the White House, from thence to Annapolis, Md.; re-mained there until July 15th, when I rejoined my command, and was at once granted 'leave of absence.'. After my arrival home my general health commenced failing. August 13th.—My leg and back (spine) were in as poor a condition as at any time since my injury. Since this time I have been gradually improving. For three months or more I had a severe pain on the left side of my head—a spot as large as a dime—like the driving of a nail into the head. I feel this at times yet, when tired or excited. At the present time (Jan. 7, 1865), the muscles of the leg, above the knee (front), are tender and sore ; also those below the knee. When walking, I am unable to bend the knee naturally, and feel a cutting sensation through the calf of the leg. I have sharp, darting pains through the upper part of the chest. My appetite has been excellent most of the time, and digestion good ; however, it has seemed to do me but little good. My system is very weak ; the least exposure to the cold or wet confines me to my room." I will add that in Captain R.'s case the paralysis was distinct and well marked, affecting the right leg and arm."

" In neither of the preceding cases was there wound or contusion. The violence affecting the nervous centres operated through the medium of the atmosphere at a greater or less distance, and in this they differ from the injuries described by Drs. Mitchell, Moorhouse, and King. The *first* and *last* were cases of decided paralysis, re-sembling that which follows a breach of continuity of the nerve cords, or from compression of the nervous centres. In the last case recovery has not yet taken place ; the first has passed beyond my observation.

" The *second* case presents some peculiarities upon which I wish to comment ; and the point is, the complete change which the ex-plosion produced in the moral and affective faculties of the man. He had acquitted himself creditably in the battles of the first Bull Run, West Point, and Gaines' Mill—had risen from the ranks to a lieutenancy, and had been appointed adjutant of his regiment ; and no stain of cowardice or other unofficer-like conduct was upon his record down to the time of his receiving the injury. His subsequent course indicates a complete perversion of the character he had formerly borne—a change not only equal to, but strongly resembling what is seen in cases of derangement from ordinary causes ; and one inducing

movements as uncontrollable, and as much beyond his power to restrain, as were the muscles of the palsied limbs in the other cases beyond the power of volition to excite them.

"The exigencies of the service without doubt required that the place of such officer should be supplied with another; but I am far from believing him culpable in the highest degree for his refusal to return to duty. That his mind was not in a sound condition is by no means improbable; on the contrary, the sudden transformation of the man, the subsequent total disregard of consequences, and of every consideration affecting his reputation which he exhibited, closely simulates well recognised *irresponsible* conditions of the human intellect."

ART. 78.—*On the Electrolytic Method in its Application to Surgical Operations.*

By M. SCOUTETTEN.

(*L'Union Médicale,* Juillet, 1865; and *New York Medical Journal,* September, 1865.)

Before the *Académie Impériale de Médecine* M. Scoutetten read a paper with the above title. The following are the conclusions arrived at by the author:—

1. The effects produced by electricity are of three kinds:

a. Electrolyzation, that is to say, decomposition of the elements of the tissues without decomposition.

b. Accumulation of acids and alkalies at each of the poles; chemical cauterization produced by these bodies in the tissues; disorganization.

c. Physical cauterization produced by the caloric developed by the galvanic current passing through a perfectly homogeneous metallic wire.

2. These last two actions are secondary effects of electricity, and are not inherent in it. They can be replaced by other agents, such as caustic alkalies, or fire.

3. The electrolytic method is perfectly applicable to the treatment of all soft tumours containing decomposable liquids, such as cysts about the wrist-joints, hydroceles, accumulation of liquids in the articulations or near the soft ganglions of the neck, soft goitre, hæmatoceles, arterial or venous tumours, and perhaps ovarian cysts.

4. It should not be used in the treatment of cancer, or for the removal of fibrous or indurated tumours, and unless they are small and destructible by a slight cauterisation.

5. It is not suited to the treatment of lipomias or any other encysted tumour where the fatty element predominates.

Art. 79.—*Hypodermic Injection of Calomel in Syphilis.*

By Dr. Scarenzio.

(*Presse Médicale*, and *British Medical Journal*, July 22, 1865.)

Dr. Scarenzio, of Pavia, has published the results of his treatment of constitutional syphilis by means of the subcutaneous injection of calomel suspended in a convenient vehicle (such as glycerine, mucilage, or water). He employed calomel in the persuasion that it could, in absorption, become changed into bichloride of mercury; and the reason for not using the last-named salt at once was, that he feared it would produce gangrenous inflammation. The injection used consisted of twenty centigrammes (about three grains) of sublimed calomel, mixed with a gramme and a half or two grammes (from twenty-three to thirty grains) of liquid. It was used like other hypodermic injections. Dr. Scarenzio at first chose the inner side of the thigh as the part for making the injection; but afterwards the inner aspect of the arm, as this does not oblige the patient to remain long in bed. In eight cases of ulcer, nodes, pains in the bones, blennorrhœa, tubercle, necrosis, &c., the treatment failed once only; the case being one which obstinately resisted all mercurial treatment. The cure was rapid and permanent, and not accompanied nor followed by any accidents. There is, however, always an abscess at the point of puncture, which, however, on being opened, heals rapidly. The pus contains no trace of mercury. Dr. Scarenzio believes that the abscesses are due to the transformation of the calomel into bichloride of mercury. The good effects of the injection do not appear for a week or two; but when improvement once sets in, recovery proceeds rapidly. In one case there was rather obstinate salivation.

Art. 80.—*Remarks on the Unity of the Syphilitic Virus.*

By J. L. Bidenkap, Christiania.

(*British Medical Journal*, October, 1864.)

M. Bidenkap discusses the question of the duality of the syphilitic virus. He admits that it is perfectly true that, practically, there often is a marked difference in the development and characters of the two species; so that an exercised practitioner can foretell whether there will result a general infection of the organism or not. But that is all at present; and even this will, in many instances, not be possible. "In fact," he says, "we can never with perfect security rely upon these characters; and the only sure method of ascertaining the nature of the ulcer is to await the final result, *in-fection* or *non*-infection of the system. It is, for this reason, more accurate to designate the two species by the terms, infecting and non-infecting ulcers.

" According to my experience," he proceeds "(and probably all
who have seen a certain number of cases will agree with me), there
exists, besides the true typical pseudo-chancre and the soft non-
infecting ulcer, a great variety of chancres, of different aspect and
development, which often prove to be infecting.

" To explain these exceptions (as they at first were thought to be),
there exists a very ingenious theory—that of the 'mixed chancre.'
This theory explains away all difficulties. When a chancre is not
typical, it is a mixed chancre ; that is, produced by a double infec-
tion, first from true syphilis, and on the same spot from a soft ulcer,
or *vice versâ*. The possibility of such a double infection, but only
the possibility, has been established beyond doubt by experiment ;
the soft chancrous matter being inoculated on the hard non-suppu-
rating chancre with complete success. But still the question remains,
whether all these varieties of forms really are produced by nature
in this way. These varieties are more common than the true typical
form ; that which should be the rule is, as most observers will have
seen, only an exception. Can it be possible that both diseases are
so very often mixed together ? It may, perhaps, be possible in some
large towns, where both are widely spread ; it would be perfectly
impossible in country districts and smaller localities, where they are
seldom met with. The improbability of this explanation must, at
least, be apparent ; and I shall try to explain that it can be proved
by experiments to be erroneous. After all, I think it reasonable to
conclude that the characters of the two species are not so widely
different as to justify the opinion that they are of different origin.
I shall now go over to the experimental part of my inquiries ; in
which I hope to bring forth sure proofs that both species of ulcer
belong to a common source, the true syphilis.

" Until a few years ago it was commonly believed that a true
syphilitic primary ulcer was inoculable with the lancet, at least in
its first stage of development. This was considered so certain, that
a non-inoculable ulcer generally was pronounced to be not specific
at all. It may be remarked that the experimental inoculations
always were made on the patient himself, or on another person
labouring under constitutional syphilitic symptoms. Now, it is
commonly stated by the dualists that the true syphilitic ulcer, the
infecting chancre, is not inoculable on the patient himself or on
another syphilitic person ; and that an ulcer which, by inoculation,
produces the characteristic pustule, is a non-infecting chancre or
not syphilitic. There could not be a greater change of opinion.
The property which was considered essential for the syphilitic pri-
mary ulcer is now considered a proof of the contrary. Still some
authors admit that there may be exceptions to this rule ; but these
exceptions are then explained to appear only when the chancre is
mixed.

" To try the truth of these different opinions, I have inoculated
a great number of chancres, especially all the infecting chancres,
which have come under my observation during some years. The
result is, that I have found almost all inoculable, when I only did
it properly. How is this to be explained ?

"As a rule, the greater number of infecting chancres which present themselves suppurate, even when the hardness is well pronounced; and these will very often give rise to a pustule by the first inoculation. The more freely they suppurate, the more sure will the result be, and the larger the pustule produced. But sometimes it will happen that the inoculation fails to produce any result. If we look at the chancre, we generally observe that it is not in a state of healthy suppuration; the surface is pale, covered with gangrenous substance or with decayed remains of cells mixed with a thin serous fluid. This matter, just like the secretion from a phagedænic ulcer, will not produce a syphilitic pustule; but if we try to alter the secretion, to produce a free suppuration with fresh granulations, renewed inoculations will generally produce the desired result. And if the first inoculation do not produce it, we may continue day after day, and at last the pustule will appear. I have, in some cases, continued in this way for three or four weeks before I got the pustule; and it is necessary that both the patient and the experimenter do not lose patience too early. If so much pains be taken there will be very few cases in which the result (a pustule) does not appear. If other means fail, the application of powder of savine to the surface of the chancre will often hasten the result. The dualists will probably explain this fact in their own way, by supposing all these chancres to be 'mixed.' Setting all other arguments aside, I will only point out that this explanation is impossible, because a mixed chancre could easily be inoculable in the beginning, and lose this property afterwards; but could never begin by being non-inoculable, and some weeks after produce a characteristic pustule.

"I conclude from these experiments, which are so numerous that they cannot well be related here, that the infecting chancre is inoculable just like the non-infecting under certain circumstances; but that some circumstances may render it—as, indeed, often the non-infecting—refractory to the process.

"With the true typical pseudo-chancre, the inoculation is more difficult. On its smooth surface, where no secretion or only a slight watery discharge takes place, the lancet will generally not find anything wherewith to perform the process.

"In this way, a lecturer may easily show his pupils how an infecting chancre is refractory to inoculation on the patient himself. But even this form can be rendered inoculable, and is often brought to this point by a natural process. When it is exposed to irritation of any kind so strong as to produce ulceration, and consequent repair by suppuration, it will be found to be inoculable like any non-infecting ulcer. The only difficulty is to bring this hard, indolent knot to suppurate; but as this generally can be done by patience, it will prove no exception to the rule. There is, however, one thing which can easily lead to a deception on this point. When a slight irritant is applied to such a chancre, it will often happen that no true suppuration is produced from its surface, but that it is only covered with loosened epithelial scales—a sort of detritus, mixed with the muco-purulent discharge from adjoining parts. This matter will generally produce no effect. But when an excavation is formed

on the indurated knot, giving the appearance of a slightly elevated ulcer, the matter carefully collected from this will prove inoculable.

" Even mucous tubercles, a decided constitutional symptom, will sometimes, when irritated so as to suppurate freely, produce the characteristic pustule by inoculation. This effect, which I had observed several times in mucous tubercles when irritated by the patient walking about with them, has been produced artificially by my friend, Dr. Köbner, of Breslau, by cutting out a part of them with a pair of scissors, and thus producing suppuration.

" The conclusion which I draw from these facts is, that the inoculability of the chancre, the infecting as well as the non-infecting, depends in a great measure on the state of suppuration going on in the ulcer.

" A few of my experiments have been followed by a result which to me was at first rather surprising ; and, as I lay a great weight upon them, I will relate one of them with all circumstances.

" A young man, twenty-six years of age, entered the hospital in Christiania on January 5th, 1863, with a chancre between the glans and prepuce. There was a large cartilaginous induration a little to the right of the middle line, almost of the size and shape of an almond, and on this an excoriation, with small depressed patches filled with some detritus of organic cells of whitish colour. In both groins, and most distinctly in the left, the glands were swollen and hard. He had got the infection five weeks before his admission ; and he had not remarked the chancre for more than a week, when he observed it as a small excoriated spot.

" On January 9th, three inoculations were made with the scanty matter which could be scraped off the sore, apparently without any result. Two days afterwards the inoculations were repeated ; and so on every second day for a fortnight. Apparently, no result at all was produced by these inoculations ; the small crust of blood following the punctures fell off, and there was nothing to be seen which indicated anything going on.

" On January 25th, still no effect appearing, powder of savine was applied to the chancre. The following day it suppurated freely ; but still no effect was produced by inoculations. At last, two days afterwards, on January 27th, three inoculations were made with the now abundant secretion from the chancre ; and the result was, on the 29th, the formation of well-developed characteristic pustules.

" On the same day, there began to appear in some of the places where the first inoculations were made, on January 9th and following days, small red papules, slightly depressed in the centre, and flat. These papules increased gradually in size on the following days, and were followed by some new ones ; so that, at last, on every spot where the apparently unsuccessful inoculations had been made, a papule presented itself. There was a regular decrease in size from the first which appeared after the first made inoculations to the last made. On February 3rd, the first had gained a diameter of a quarter of an inch. They were slightly elevated ; had put on thin crusts ; and were surrounded by a red inflammatory halo. Their

colour was a dark livid red; and they had, in fact, all the appearance of the typical pseudo-chancre except the induration, which could not be distinctly felt. During the month of February, even the latter and the smaller of them grew to the same size and assumed the same aspect.

" On January 29th, the inoculations from the chancre, which still continued to suppurate, were renewed, and produced large pustules, followed by excavated ulcers, from which a great number of secondary inoculations were made on the patient himself, and on other syphilitic persons, with a positive result. In the meantime, swelling of the glands of the neck, roseola, copper-coloured patches on the forehead, and other syphilitic symptoms, set in; and the patient was put under treatment by syphilisation, and cured in the common course of time.

" One more symptom was remarked during the progress of the disease. Close to some of the papules following the inoculations, were remarked small indurated lymphatic glands, and from some of these there extended a characteristic series of knots like a rosary.

" Another case, exactly similar to this, was observed almost at the same time and under similar circumstances.

" In these cases, there are many things which cannot well be explained in accordance with the dualistic theory.

" We have a characteristic indurated chancre, almost a typical one, which, as the event showed, was infecting. The secretion from this chancre, inoculated on the patient himself, gives rise to a symptom exactly similar to the pseudo-chancre produced in healthy persons by the inoculation of matter from a constitutional symptom. There is no pustule formed; but, after an incubation of some weeks, a papule shows itself, which gradually is developed into a large, livid, slightly secreting spot. Not one of the slight punctures of the charged lancet fails to produce this effect. What is this papule? Evidently it is not an eruption of the constitutional disease produced by an accidental irritation. This explanation, which immediately presented itself to me, cannot be maintained, when we consider that the slight local effect of the puncture had passed away in a few days, and that almost three weeks elapsed from that time till the papule appeared. Evidently, it is a local manifestation of the introduction of the syphilitic virus; it is the pseudo-chancre developed on a syphilitic organism. Though this explanation is not in accordance with any theory, it is the only possible one; and theories must yield to facts. It may be possible that such an effect will not be produced in a person who already shows constitutional symptoms: in both these cases the inoculation was made three or four weeks before that time. Still the fact is remarkable enough; and will perhaps tend to efface the old opinion—that a syphilitic organism cannot be effected by any new introduction of the syphilitic virus. In this respect, the hardening and swelling of the adjacent lymphatic glands ought to be taken into consideration. This affection of the glands is generally considered as a symptom of the absorption of the virus, or, perhaps, better, as a sign that the introduced virus is acting upon the organism, and that a reproduction

of it takes place, which reproduction, according to the theory of Virchow, generally takes place just in these diseased glands.

" But now this same typical indurated and infecting chancre, which during three weeks only yielded the above described symptom, when it was inoculated, and failed to produce the pustule, behaved in another way after it was irritated and suppuration had set in. The matter now formed produced large pustules, whose matter was re-inoculable and formed deep ulcers. In reality, it was now, according to the dualistic theory, a mixed chancre. But the mixture had not been produced by a new infection with the secretion of a soft chancre (the patients had not quitted the hospital for a moment since they were admitted) ; it was simply produced by the irritating action of the powdered savine. This is, after all, the solution of the problem of the mixed chancre ; *every infecting chancre which, from one cause or another, suppurates freely, is a ' chancre mixte ;'* and generally it can be produced at will without the aid of a soft chancre. And this, too, is the solution of the question about the duality of virus.

" But it remains to explain what this artificial pustule and ulcer, which is produced by inoculation from an infecting chancre, really is. Evidently, it has all the characters of a soft chancre ; and it is not possible, by its aspect alone, to distinguish it from the pustule and ulcer arising from the inoculation of a non-infecting chancre. Moreover, it is re-inoculable just like this. But what would the effect be, if it were inoculated on a healthy person ? Would it again assume its infecting properties, or would it produce a non-infecting ulcer ? As yet, all the experiments of which I have spoken were made on persons who already laboured under infecting chancres or showed symptoms of constitutional syphilis ; and as I did not think myself justified in operating upon healthy persons, I could give no answer to this question, until by chance some cases came under my observation in which the said inoculation had been made.

" Three young girls who were in the hospital, out of a ' lark,' inoculated themselves with the matter from these artificial chancres, which had been produced from infecting sores. One of these girls had, some years ago, laboured under constitutional syphilis, and had been treated by syphilisation. In her the inoculation produced only a small pustule, which dried up without leaving an ulcer. Another had never had syphilis, and was under treatment for eczema of the hands and forearms. She inoculated herself on eighteen different spots, and thus produced eighteen chancres. To try their nature, I re-inoculated the matter from these, and produced twelve more ; so that she had in all thirty chancres. She was kept in the hospital for about six months without any anti-syphilitic treatment ; but no distinct symptom of constitutional disease could be observed.

" The third person was a young girl who was under treatment for gonorrhœa, and who never had had any venereal disease before. She inoculated herself in the epigastric region with only one puncture. This produced a large chancre, which was re-inoculable,

as was proved on other subjects. It grew to a diameter of more than half an inch, and produced some swelling and inflammatory redness. A new, but smaller, chancre formed itself in the neighbourhood, probably by spontaneous inoculation from the abundant secretion of the first ulcer. One of the axillary glands swelled and became painful; but the inflammation was resolved without suppurating. The chancres were only treated by water-dressing, and healed up in about three months. No constitutional symptom was observed during her stay in the hospital, or for one year and a half afterwards, during which time she was frequently examined by myself; but, at that time, she contracted in a natural way a new chancre on the genitals, which proved infecting, and produced roseola and other constitutional symptoms.

"This case concludes, in my opinion, the series of facts which prove the common origin of the infecting and non-infecting sore. It is, indeed, the missing link to complete my deductions.

"We know now, that an infecting chancre, and even a mucous tubercle under certain circumstances, can produce a soft, non-infecting ulcer, which, after this, must be considered as a local symptom arising from true syphilitic poison. But there still remain questions enough unsolved, with regard to the nature of the syphilitic poison, and especially concerning the non-infecting chancre. Will this, as commonly asserted, always be propagated only as a local symptom? or can it re-assume the lost property of infecting the system? We know, as yet, very little about that. Some few circumstances seem to point at the possibility of this process.

"In the numerous methodic inoculations made during the process of syphilisation, as it for many years has been practised in Christiania, it has been remarked that the artificial ulcers produce almost the same effect of rendering the organism refractory to the local reaction against the virus and of curing the disease, whether they have been derived from infecting or from non-infecting chancres. Moreover, the indurated swelling of the lymphatic glands, to which I have already alluded, is a very common symptom following these inoculations, and seems to prove that the virus really is absorbed or affects the organism. But further experiments will probably throw more light on this question."

Art. 81.—*On Dressing Wounds.*

By Mr. Fergusson, F.R.C.S., F.R.S., Surgeon to King's College, Professor of Surgery in the Royal College of Surgeons, and Surgeon Extraordinary to H.M. the Queen.

(*Lancet,* June, 1865.)

In a course of lectures on the Progress of Surgery during the Present Century, delivered at the Royal College of Surgeons, Mr. Fergusson made the following observations on dressing wounds :—

"The simplicity of dressing a wound, of dealing with an open surface or sore—which I alluded to in my last course as being characteristic of modern surgery—may be viewed in various lights and aspects. The simplicity of the application and the simplicity of manipulation both deserve notice, particularly as each in perfect surgery is regulated by a due appreciation of nature's powers and of the influence of time. Never, I believe, in the history of surgery was there less faith in applications to wounds and sores than at present. Our trust now is chiefly in nature ; and unless there be a regulating power from within, we know that we can do but little either to restrain or excite. The efficacy of our simplest applications may often be questionable ; and those which stimulate I feel certain often do more harm than good. Nothing, I fancy, can be simpler than lint and water. What can be less irritating than lard or simple cerate? Even these are set aside by some of our ablest practitioners, such as Dr. Humphry of Cambridge ; and literally nothing is applied to some of the largest wounds we have to deal with. To be sure, in accordance with custom in this country, the surfaces are held together by stitches until nature effects the permanent union ; but in such an instance these are only mechanical aids ; they are like the splints with which we keep steady the fragments of a broken bone. The contrast between heaps of dressings on a stump of the thigh and nothing at all is certainly remarkable. All that some aim at is merely to keep surfaces in contact, and from molestation—even from the weight of bedclothes. In as far as actual union is concerned, this is perhaps the best and most philosophic view to take. Yet evil may actually arise from such excess of simplicity. It is hardly possible to guard against external influences, either from around, or from the incautious or irregular movements of the patient. Hence, in many instances, such a style of dressing, with straps or bandages, or both combined, as shall give most security against such evil influences, must be allowed to be the wisest course. Yet again I say that these are only mechanical appliances ; but where they are accurately adapted their utility is beyond doubt. If an ointment is used in such a case, it cannot possibly be of any service except to facilitate the removal of outside coverings. I here refer to ointment as being one of the simplest applications ; and whatever virtue may be claimed for any special compound of the kind, its influence cannot extend far. Water must have a more extended sphere of action, for if prevented from evaporating, and regularly applied, all around must be kept more or less moist. The temperature of a considerable substance of tissues may be materially modified by water. Wet cloths, if applied only at a first or single dressing, I count as nothing in what I am now referring to ; but if cold water be frequently renewed without special covering, or if evaporation be prevented by oiled silk, the temperature may be kept considerably below the natural standard, or possibly somewhat above ; although on these points I do not think that we have much precise knowledge. Notwithstanding some assertions to the contrary, I believe that most of us have the impression that whilst adhesion at a wound is being effected there

is present what Hunter called 'the adhesive inflammation;' but I am not aware that it has ever been demonstrated that a slight fall or rise in temperature has much, if any, influence on that process.

"I refer to this subject at present chiefly to question the supposed beneficial influence of even so mild an application as water, or of simple ointment, in regard to the process of adhesion. If only this process be aimed at, I believe them to be utterly useless. They have no healing influence whatever!

"But in the majority of wounds, even when we talk of adhesion having taken place, some points here and there do not unite; and these must then do so by the more tardy processes of suppuration and granulation. If ligatures have been used to arrest hæmorrhage, and the ends are left out, suppuration and granulation must of necessity occur. And here, I believe, complicated and compounded dressings are equally useless. Ointments, even the most simple, are, in my opinion, of value only as permitting the more ready removal of soiled dressings; but water, in such cases, I consider of singular worth. If moderately cold, it may keep down temperature —possibly prevent accumulation of blood in the inflamed parts; and in both ways, or by some other influence on the nervous system, give at least comfort to the patient's feelings. I believe the theory a sound one, that moisture and warmth tend to promote suppuration; and when this process is once fairly established the patient generally has considerable relief, both from local distress and general fever. The old-fashioned poultice has been largely displaced to make way for the more elegant dressing of wet lint covered with oiled silk, or for the 'spongio-piline,' which serves similar purposes. In my daily experience I am often asked if water used thus should be hot or cold. I answer that it is of little or no consequence, as in either case the water will speedily acquire the temperature of the surface on which it is placed.

"But it is with palpable open surfaces that there is the greatest variety of dressings, and perhaps variety of opinion as to the specific agency of compounded dressings. For a simple excoriation or abrasion not larger than ¡a pin's head, to those enormous damaged surfaces from scalds and burns which may cover half the body or more, there have been compositions recommended which I have neither time nor inclination to enumerate. All have been vaunted; all men of experience have seen most of them tried. Patients have died during, though not from, their application; and surfaces have been healed under all such varied agencies. Fluids have been used, from the blandest—say thin water-gruel—to solutions of various irritating, even caustic salts, or to spirit of wine or of turpentine. Powders, from simple flour to that of carbonate of lime, oxide of zinc or of resin, have had their advocates. Oils, from sweet oil up to turpentine, have been extolled; and an envelopment of cotton wool has been in certain instances considered all powerful.

"Here it appears as if our resources for good were unlimited. With so many applications for open surfaces, each having been

extolled in its time as beyond all others in utility, does it not
appear as if we possessed the most precise power wherewith to heal
as it were at command? Yet how often do we see the highest skill
seemingly baffled! And does it not appear evident that the man of
experience is generally indifferent as to which application is used
for a time? The reason of this, I believe, is, that when out of
scholastic bounds and reasoning for himself, he is not impressed
with confidence in those specific virtues for which certain applica-
tions have been extolled. For my own part, I have long come to
the conclusion that many of those agents are positively injurious,
and that when healing actually takes place under their use it is in
despite. There is a power within the body itself which works for
good irrespective of such injurious appliances. No doubt, in some
instances, a gentle stimulant in the shape of lotion or ointment does
good; but in the majority, if Nature be left to herself, she will
effect cicatrization in proper time—a time over the duration of
which we have but little control. From what I now say, it might
appear that we have actually no power or influence in the manage-
ment of such cases. But I am far from implying this; on the con-
trary, the utmost skill may be displayed, the highest success
achieved. . . . . . .

  "An astringent lotion—say a solution in water of sulphate of
zinc, two or three grains to the ounce—is by most of us deemed
well-nigh specific; and so it in a manner seems to be when a sore
is rapidly approaching the last stage of healing. The same may be
said of various solutions and ointments. Yet dare one of us affirm
that had water only, or dry lint only, been applied, or had nothing
been used, the sore would have been an hour later in healing? Yet
so strong is faith in these applications, that the practitioner just
emerged from the schools is apt to take what he thinks will be the
most rapid course, and so astringents are resorted to at once, and
thus a raw surface is so teased and irritated that Nature takes twice
the time to do her work of repair. A sore which, if let alone, or
covered by some simple only, would have healed in a few days or
weeks, may be so fretted as to endure for months. It must have
frequently fallen to the lot of seniors to be consulted by patients
and practitioners about sores which seem to have baffled all skill
and every sort of application, and when the advice has been given
to apply simple water—a bit of wetted lint—to do, as it were,
nothing at all—the sore has rapidly healed. I know of no stronger
test of confidence in my own humble skill which I ever incur with
those who consult me than when, visit after visit, with reference to
slow-healing sores, I say, 'Go on with wet lint, if you please!'
Yet I fancy it is the right course both for the patient and for
surgery. Occasionally some, under the impression that nothing is
being done, will cling to the mysterious-looking black or yellow
lotion—to the so-called specific alterative; even a month of slow
poisoning with mercury may be preferred to the *laissez faire*
system; but the generality of patients are satisfied with a reasonable
explanation."

Art. 82.—*On the Initial Lesion of Syphilis as observed when Inoculation of that Disease is made experimentally.*

By BERKELEY HILL, F.R.C.S., Assistant-Surgeon to University College Hospital.

(*Lancet*, October, 1865.)

Mr. Berkeley Hill seeks to establish the following points :—

" 1. That the evolution of primary syphilis is generally, but not invariably, accompanied by ulceration.

" 2. This ulceration is not the earliest sign of successful inoculation, but rather a result of degeneration of the badly-developed tissue of which the indurated papule or tubercle consists.

" 3. That the production of an ulcer immediately after inoculation is in every case due, not to the syphilitic poison itself, but to irritating matter being inserted with it in the wound, this irritating matter being in many cases the contagious principle of soft chancres, or the pus of other suppurating surfaces, as in the instance mentioned before, where Vidal inserted some pus of a syphilitic pustule into a gentleman's hand, and produced a pustule which lasted fifteen days, then subsided, and no further action took place until the thirty-fifth day, when the eruption broke out afresh, and constitutional symptoms appeared 128 days after the inoculation.

" 4. That the ordinary commencement of syphilis being by formation of a solid elevation of the skin at the point of entry of the poison, with subsequent ulceration of the tubercle, it is very doubtful if these appearances are ever altogether absent."

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Art. 83.—*Traumatic Tetanus treated by Acupuncturation.*

By JAMES ALEXANDER GRANT, M.D., F.R.C.S.E., M.R.C.P.L., &c.

(*Medical Times and Gazette*, November, 1865.)

Dr. J. A. Grant, of Ottawa City, Canada West, records the following case :—

CASE.—W. H., aged thirty-seven years, of moderate stoutness, regular habits, and generally in the enjoyment of health, engaged as an operative in a saw-mill, July 16, 1865, while in the act of rectifying some portion of machinery, received a wound from a circular saw over the right frontal eminence, and a small portion of the bone was denuded of its periosteum. The injury was attended to immediately, and at the expiration of two weeks healed without any difficulty. On the fourth day after the accident, the orbicularis palpebrarum of the right eye became contracted, and on the eighth day the muscles of jaws and neck became more or less rigid.

July 26.—Stiffness of the jaws became so much worse that he was unable to open his mouth more than half an inch, and he experienced great difficulty in swallowing.

27th.—Removed to the city, and came under my charge, tetanic expression of the face very marked ; skin cool, pulse 80 and full ; urine voided in

normal quantity, high coloured, abounding in lithates, sp. gr. 1020 ; bowels confined ; sleep disturbed for several nights ; complains of stiffness in the neck and back extending to the muscles of the chest and abdomen ; able to walk about his room at a slow pace ; could talk moderately distinct, but with some difficulty. At this time there was no spasmodic action of the muscles of the back or abdomen (opis- or emprosthotonos) ; croton oil and colocynth were given.

On the following morning (28th) there was trismus, the mouth firmly closed ; bowels acted freely during the night ; skin cool ; pulse 85, and feeble ; muscles of the face unaltered ; masseters and buccinators rigid. During sleep moderate relaxation occasionally took place, at which time the cheeks were frequently bitten when spasmodic action set in ; to avoid this the patient placed a small piece of stick between his teeth. The intellect was quite clear. Ordered R Extract. cannab. Indic. alcohol., gr. xxiv. ; alcohol. dilut., ℥j. A drachm to be given every two hours in a table spoonful of water, also pounded ice to the spine ; beef tea to be given freely. 9 p.m.—Ordered calomel, gr. ij ; pulv. opii, gr. ij.

29th, 9 a.m.—There had been a few hours' sleep, and the patient had swallowed about two pints of beef tea. In all important points the symptoms continued the same until August 1, when he grew much worse. The forehead became wrinkled ; the neck, chest, and abdomen became very tense ; the trunk was slightly arched backwards, and the muscles on either side of the spine were very rigid. Those of the arms and legs were unaffected. The sterno-cleido-mastoids appeared thrown forward, and the interspace was deep and well defined. The skin frequently became bathed with perspiration, and the respiration difficult, owing to the inability to expand fully the thoracic walls, from the rigidity of the proper respiratory muscles. Clonic spasms came on about every two hours, giving rise to great pain at the scrobiculus cordis ; skin cool ; pulse 90 and feeble ; pupils natural, acting readily on exposure to light, and the intelligence was unimpaired ; bowels relieved by an enema of warm water. 9 p.m.—Much in the same state. The abdomen feels hard, and he complains of an increased pain in the back since morning. Ordered chlorodyne, gtt. xx., in an ounce of water. The mixture continued every three hours, and ice to the spine as formerly.

August 2, 9 a.m.—He passed a restless night, but slept at intervals about three hours towards morning. Skin warm and moist ; pulse 85, soft ; the extreme tip of the tongue only can be protruded. He had several severe spasms during the night. The mixture to be continued, also the wine and beef-tea. 8 p.m.—Much in the same state, excepting that his urine is voided with some difficulty ; it has an acid reaction ; it is unaffected by heat or nitric acid, and on standing for some hours deposits a considerable quantity of lithate of ammonia. Ordered morph. acet., gr. ½.

2nd, 1 a.m.—Much worse ; his jaws closed, and his expression that of great suffering. He had frequent spasms affecting both the arms and legs, and could not articulate without considerable difficulty, each effort being attended by a spasm. His respirations were hurried, and at times the whole body became quite stiff, the extremities becoming extended to their utmost, and the soles of the feet quite concave. The extremities being cold, hot bricks were applied ; sinapisms over the heart and wine and beef-tea given freely. The difficulty of swallowing was so great that the liquids could only be taken in very small quantities. Pulse 100, and small. Mixture discontinued. At this time Dr. Beaubien, of the General Hospital, visited him in consultation. Ordered morph. acet. gr. ½. 9 a.m.—He had frequent severe spasms during the night, and only slept at very short intervals. Bowels relieved by a castor-oil enema, otherwise there was not

any favourable change to be observed. At this stage of the disease, finding the prospect of recovery becoming more unfavourable, I resolved to have recourse to acupuncturation. Three (number 9) needles were forthwith inserted into the muscles of the neck, on either side, and within an inch of the spinous processes of the cervical vertebræ. The needles were separate from each other longitudinally fully an inch. Prior to this operation, the muscles of the neck were firm and rigid, and there was a perfect inability to rotate the head upon the shoulders. The needles were inserted with difficulty, owing to the great tension of the muscular structures. Very slight pain was experienced during the operation. No sooner had they been inserted than the poor man cried out, "Thank Providence, I have got relief!" The needles were removed after one minute ; he was then able to move his head laterally with considerable ease, owing to the most marked reduction of the muscular tension. The needles were removed with much greater ease than they were inserted. The power of deglutition was now also increased. Having observed this marked improvement after the first operation, the needles were inserted each day in the rigid muscles of the cervical, dorsal, and lumbar region.

6th, 9 a.m.—Passed a good night ; experienced very little pain in any part of the body ; the countenance cheerful, and he enjoys his beef-tea, wine, and arrowroot. The jaws have relaxed fully two inches, and he can swallow with freedom ; the paroxysms sometimes are felt, but at long intervals, and so slight as to cause very little uneasiness. From this date he continued to improve without any unfavourable indication, the rigidity of the various muscles rapidly giving way under this treatment.

23rd.—He returned home almost perfectly well, only complaining of the weakness resulting from the marked severity of the attack.

" I have since learned that he enjoys his usual vigour of mind and body. Drs. Macdonnell, Beaubien, Graham, Reill, and several medical students witnessed the very satisfactory effects of this mode of treatment. Having frequently given immediate relief in cases of sciatica by acupuncturation, I was induced to test the effect of needles in tetanus, doubtful as to any beneficial influence being exerted thus, in a disease the various phenomena of which are said to depend upon an 'unnatural excitability' of the spinal cord. However, in this disease every hint is of more or less value, more especially on account of its intractable nature, and because in its treament almost "every expedient and every medicinal resource that ingenuity or skill could devise has been tried, but in vain ; for a remedy that has appeared to produce good effect in one instance, has totally failed in another under similar circumstances.

" Should this method of treatment prove beneficial in other cases of tetanus, it would likely be that class in which lesion of the spinal cord is either not present, or present only in a very slight degree. In tetanus, according to Bowman, under the microscope, the primitive fasciculi exhibit the characteristic signs of extreme contraction and a closer approximation of the transverse striæ than usual. Just in proportion as muscular relaxation took place, the insertion of the needles became more painful, which circumstance led me to infer that the pressure exerted by tetanic muscular rigidity on the minute nervous filaments, which cross the fibrillæ in loops, might account for the reduction of sensation during the first acupuncturation."

ART. 84.—*On the Surgical Treatment of Certain Cases
of Acute Inflammation of the Veins.*

By HENRY LEE, F.R.C.S.

In a paper read before the Royal Medical and Chirurgical Society, Mr. Lee stated that in Mr. Arnott's admirable paper on "Inflammation of the Veins," published in the fifteenth volume of the Medico-Chirurgical Transactions, he had drawn the inference that the dangerous consequences of phlebitis bear no direct relation to the extent of the vein which is inflamed. He had there proved, by an excellent collection of cases, and by his observations on those cases, that death in cases of phlebitis does not take place from the inflammation extending to the heart, but from the entrance of some morbid product into the general circulation (pp. 44 and 61). In a paper by Mr. Lee, published in the thirty-fifth volume of the Society's "Transactions," he had endeavoured to show that the material which obstructs the cavities of veins in cases of phlebitis is derived from the blood itself, and is not in the early stages of the disease a secretion from the lining membrane of the vessels ; that the veins become extensively inflamed only in cases where coagula have previously formed ; and that the purulent-looking fluid often found in the cavities of inflamed veins is derived from the changes which under the circumstances take place in the fibrin of the blood. The distinction which he wished to establish between the process by means of which fibrin is deposited from the blood, and that by which lymph is secreted from the lining membrane of a vein, was of primary importance, not only with regard to the pathology of this class of diseases, but also with regard to their surgical treatment ; for it must be obvious that if the material which occupies the cavities of the vessels in cases of phlebitis were secreted by the inner coats of the veins, it would adhere firmly to that membrane, and would be found lining equally the whole circumference. It would not be displaced by the force of the circulation, nor by any other mechanical means likely to be employed. Moreover, the morbid process would extend by the continuity of action, and would not be arrested by any surgical interference. If, on the other hand, the material found in the veins were derived from the blood, it might be expected to adhere slightly only to the walls of the vessels, to be attached to one part only of those walls, and to be removed easily by any mechanical force. It would be deposited in uncertain quantity, and at irregular intervals, leaving portions of the lining membrane between those intervals free from deposit, and of its natural appearance. The deposit would often, as had actually occurred in some of the cases related by Mr. Arnott, terminate abruptly at the entrance of a fresh vessel : the reason of this abrupt termination being, as it appeared to Mr. Lee, the greater velocity and force of the circulation in the common trunk than in

that which is partially obstructed. Now, the appearances actually observed on post-mortem examinations in cases of phlebitis all belonged to the latter and not the former class, and the conclusion necessarily followed that the disease extends, as far as its severer symptoms are concerned, not by continuity of action in the lining membrane of the vessels, but by means of their contents, often in a more or less perfectly coagulated state. If that were the true course of the fatal symptoms in phlebitis, it appeared surprising that more attempts had not been made to arrest the progress of the disease by surgical treatment. Such attempts, however, had not been entirely wanting. Hunter remarked that when inflammation takes place beyond the orifice (of a vein) so as to alarm the surgeon, he should immediately make a compress upon the vein at the inflamed part, to make the two sides adhere together ; or, if suppuration has taken place, then the compress must be put upon that part of the vein just above the suppuration.* Now, as lymph was not effused in the early stages of phlebitis from the lining membrane as a secretion from its inner' surface, the adhesion produced by Hunter's method of treatment could be formed by coagulum of blood only. This would not, under ordinary circumstances, become organised ; it would adhere to one side only of the vessel, and it would constantly be liable to become displaced. Such a bond of union, although it might for a time prevent the morbid contents of a vein from entering the general circulation, could scarcely be looked upon as affording a permanent bond of union between the sides of the vessel. In cases where the affected vein is seated superficially, a much more certain and effectual way of closing its canal and of barring the entrance of its contents from the general circulation might be adopted. This method, which when properly performed Mr. H. Lee believed to be from danger, was adopted in three out of four of the following cases. The fourth case was given as an illustration of Mr. Hunter's method of treatment. It would, the author thought, be obvious that, although Mr. Hunter's method might perhaps have been successfully adopted in the first case, it could not have been used with any reasonable chance of success in the second and third. Four cases were then read in which, in severe cases of phlebitis, the current of blood was artificially arrested between the inflamed vein and the centre of the circulation. In one instance a pad was placed over the upper extremity of the basilic vein, and retained in its position by a bandage. In two cases a needle was passed under a healthy and unaffected portion of the vein, and pressure was made by means of a figure-of-8 ligature ; and in one case the vein above the seat of inflammation was divided subcutaneously, the two divided extremities being secured by acupressure. Of these different plans of effecting the same object, Mr. Lee preferred decidedly the latter. In any future similar case it was that to which he should have recourse. By the operation of subcutaneous section a permanent union was effected, because that union took place between the

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* *Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge*, p. 29.

opposed portions of cellular tissue on the outside of the vessel. Such a union was vascular, and, therefore, not liable to be broken down. By it no suppuration need be excited, and the needles used for the purpose of acupressure might be removed at the expiration of two, three, or four days, when the union would be complete. Union could not be ensured within the same period by the pressure of a needle placed under the vein. If the needle be removed at that time, the current of blood would be liable to be re-established through the vein; if it be left, suppuration might be excited on the outside of the vessel: this might lead to the coagulation of the blood both above and below the part where the vessel was compressed, and the coagula thus formed might undergo the very changes which produced the serious symptoms for which the operation was undertaken. In one of the recorded cases this appeared in some measure actually to have happened, for although the current of blood through the vein was arrested, yet suppuration took place both above and below the needle last introduced. In another case, on the contrary, where the vein was divided, no trace of inflammation extended beyond the divided part. In both these cases the products of the diseased actions were expelled from the interior of the veins by the process of suppuration; but had the flow of blood through the vessels been allowed to continue, some of these same morbid products would have been carried in the course of the circulation, and would have produced their effects in other and distant organs.

ART. 85.—*On a New Form of Fixed Bandage for Fractures, &c.*

By CAMPBELL DE MORGAN, F.R.S., Surgeon to the Middlesex Hospital.

(*Medical Times and Gazette*, May, 1865.)

In the first and several subsequent numbers of the *Gazette Médicale* de Paris for the present year, Dr. L. Hamon (de Fresnay) describes a new form of bandage, adapted for fractures and other injuries, under the title of *Bandage Gelatino Alcoolisé Lacé*. Of this bandage Mr. Campbell de Morgan writes:—

"I have tried it now very frequently in the Middlesex Hospital, and my colleagues are also using it. It certainly appears to me to be in some respects superior to any starch or gum, or plaster of Paris bandage, and is quite as easy of application. The material with which the bandage is stiffened is glue, and it should be prepared as follows:—The best French glue should be used. It should be broken up and soaked in a little cold water for some hours, and then melted in the usual way in a glue pot, as little water being used as possible. It is not necessary to soak the glue in cold water, but if this is not done it will require the longer heating. When it is used, about a fifth part of its bulk of alcohol must be added—methylated

spirit answers quite well. At first, this converts a great part of the melted glue into a whitish coagulum, but by a little stirring it all liquifies, and is then fit for use. The alcohol is added to induce the rapid drying of the glue, which would otherwise remain soft for many hours, but when mixed with the spirit begins to get firm on the surface very soon after it is applied, and in a short time becomes tolerably firm throughout. It should be applied with a moderate sized flat hogs' bristle brush. Supposing that a simple fracture of the leg is to be treated, these are the steps to be taken :—

"The foot should be neatly and firmly bandaged from the toes to the ankle. Two or three streaks of glue along the sides and front will secure the bandage, so that it need not be again disturbed. The leg from the ankle to the knee should then be covered with a very thin layer of cotton wool—not the medicated wool, as it is called, but such as is procured in sheets for lining dresses. Of this a layer not more than the eighth of an inch in thickness can be easily stripped off, and smoothly applied to the leg. A cotton bandage should then be rolled very smoothly and with tolerable firmness up the leg from the ankle to the knee, and well painted over with the glue. Another bandage should then be placed over the first, and the glueing process repeated. A third may then be applied and glued, and then a bandage should be put on over all, and the leg placed in position, and retained, if necessary, by sand-bags or junks. Of course, if the surgeon please, he may apply strips of bandage, or of any linen or cotton material he may find at hand, instead of repeating the rolling process. The glue should be laid on freely, and brushed a little into the bandage. In some cases two layers of the glued bandage will be found sufficient. In others it may be desirable to give greater support; but this can always be done as an after-process. The leg should be left at rest for from twelve to twenty-four hours. The glued bandage must then be cut through its whole length. This may be done with the ordinary scissors used for the starched bandage, or a director may be insinuated beneath the bandage and cut upon with a sharp knife. If too long a time elapses before the bandage is cut through, it becomes so hard that great difficulty may be found in cutting it at all. When the bandage is thus slit up, so great is its elasticity that it may have its edges separated sufficiently to allow it to be easily slipped off the leg; and when left to itself it will resume its original shape, and this elasticity it will retain for as long as it is used. A strip not more than a quarter of an inch wide, and running the whole length of the bandage, should now be cut off from one edge, and holes punched out parallel to the edges on either side, and about half an inch from them; into these 'œillets' are to be inserted, such as are commonly used in laced bandages or boots.

"The punching and insertion of the œillets are rapidly done with the common instruments used for the purpose, which, with the œillets, can be had at any toolmaker's.

"The bandage is now complete. If it is thought desirable to strengthen it generally, or in any particular part, this may be done by glueing on fresh strips of linen. Its appearance may be improved

by glueing on an edging of tape round the top and bottom, and along the slides of the slit. It is re-applied to the leg, and laced up as firmly as may be thought necessary. The lace, if it is not furnished with a tag, is best introduced on an eyed probe, and it should always be passed from without inwards. If the tag is introduced from within it always gets entangled in the cotton wool, and the process of lacing is extremely troublesome.

"Thus a case is formed which is completely moulded in the form of the limb, is very elastic, very firm, and very durable, and which can be accommodated with perfect ease to all the varying states of swelling of the limb.

"In situations where the roller cannot be conveniently carried round the part, the splint can be just as well formed by laying strips of linen in any direction and glueing them. The cotton wool of course adheres to the first layer of the bandage, and comes off when it is removed. It is applied in the first instance in great measure to keep the glue from contact with the skin.

"The great advantage of this splint is its union of firmness with elasticity. These qualities it retains undiminished for a great length of time. I have found no alteration in these respects during the many weeks that some patients have worn it : a patient now in the hospital has worn one for six weeks, and I find no change in either its firmness or elasticity. At any time it could, if required, be strengthened by a few strips of linen being glued on it.

"I have described it as applied to fracture of the leg, but it can be used in any situation where support is required. Thus I have used it in Pott's fracture, enclosing not only the leg but the ankle and foot, and have found that it could be slipped on and off with the greatest ease. I have used it in fractured patella, after sprains to the knee and ankle-joints, in diseased knee-joint, and in case of diseased hip-joint encircling the pelvis and upper part of the thigh.

"Altogether this 'bandage gelatine alcoolisé lacé' appears to me to be one of the best as well as the most easily applied, and most convenient in its after use, of any of the modifications of Seutin's bandage which have as yet been tried, and it is well worth the notice of surgeons. The advantage which it possesses over others is in its elasticity, which permits of its being widely opened when slit up, without cracking or losing its form. Hence it can be applied as a laced bandage, and may be worn for weeks together, while the patient is moving about, without the trouble of re-adjustment ; while it can be accommodated to any change in the state of the limb, through increase of swelling or its diminution, by simply letting out the lace, or taking it in, without even removing the bandage. It is, moreover, very light, and yet strong for any purpose to which a splint can be applicable."

Art. 86.—*On Acupressure.*

By Wm. Pirrie, M.C., M.D., F.R.C.S., Professor of Surgery in the University of Aberdeen, Surgeon to the Royal Infirmary, Aberdeen.

After giving a brief history of acupressure, describing its chief methods, and recording the principal cases in his own experience, Dr. Pirrie states the appreciation he has formed of the operation in the following words :—

"The first and great point to be determined is, whether or not acupressure is a perfectly reliable method of checking surgical hæmorrhage. That it is so, my belief is as strong as it could well be on any surgical point; and I have a decided impression that any surgeon who gives it a fair trial will assuredly arrive at the same conclusion.

"Besides being as reliable as any hæmostatic yet employed, it appears to me to have the advantages of being the quickest, the easiest of application, and the safest means yet devised for arresting bleeding. That the vessels in a large amputation can be acupressed in a much shorter time than they can be ligatured, I am perfectly satisfied, and in cases where every drop of blood is precious, it seems to me that to do all that can be done to preserve life, as far as saving of blood has influence, it is the duty of the surgeon in all suitable operations to give his patient the benefit of this new proceeding. But shortening the period occupied in arresting hæmorrhage is not only important for diminishing one of the early dangers of an operation—namely, that from loss of blood, but also for lessening the risk of the more remote dangers from suppuration, and many distressing results of the higher grades of the inflammatory process in the stump. I have long thought we are too apt to forget that living tissues are resentful of even slight injuries, and that we are not sufficiently careful to use the sponge as seldom, and as gently as possible. Whatever shortens the period of hæmorrhage must diminish the risk from frequent touching of the parts.

"That acupressure can be applied with the greatest facility and ease, any surgeon may satisfy himself by giving it a trial. For arriving at a just appreciation of acupressure, one of the most important points to be determined is, the effect of its use on the frequency of pyæmia, which is admitted by all to hold a high place among the causes of death after great operations. It is only by the careful observation and record of a long series of cases that this question can be definitely determined. It will, however, be generally admitted, that whatever promotes primary union diminishes, and that which induces suppuration increases, the tendency to pyæmia. Primary union never does or can take place throughout the whole of a wound where the arteries have been ligatured; but where they have been acupressed that desirable result is often

obtained, and the risk of the occurrence of pyæmia entirely obviated.
Whatever be the alterations that take place in the blood in pyæmia,
and whether the morbific matters are absorbed, imbibed, or
generated in the blood passing through an unhealthy inflamed
tissue, there can be no doubt that, for the occurrence of pyæmia,
inflammation of, or having a tendency to assume, a suppurative cha-
racter, is absolutely necessary. The presence of purulent, irritating,
and decomposing materials, and more or less of devitalised tissue at
every point of deligation, renders it highly probable that the risk of
pyæmia is much greater after ligature than after acupressure, which
does not so readily give rise to those untoward local results. Acu-
pressure requires a far briefer sojourn of the foreign body in the
wound; the obliterating foreign body is safer and less irritating,
because it is of a metallic and not of a textile nature ; and the acu-
pressure needle does not cause that mechanical division and strangu-
lation of the arterial coats which is the inevitable result of the
application of the ligature.

"I considered it a duty to give acupressure a fair trial. I wished
to form an unprejudiced judgment regarding it, and the conclusion
at which I have arrived is, that it has many and great advantages
over the ligature. I have therefore resolved, in all suitable cases,
to give it the preference,—a resolution in the propriety of which
two of my excellent hospital colleagues, who have also employed
acupressure with satisfactory results, several able surgeons who
made visits to our hospital to see the proceeding, and the whole
body of medical students at the University, most cordially concur.

"I have always felt and taught that the application of the liga-
ture by Ambrose Paré to arrest hæmorrhage in amputations and
other wounds is the greatest single improvement in the history of
surgery; that it was the greatest of the many benefits that truly great
and good man was the instrument of conferring on his fellow-men,
and that he might well say,—' For the good of mankind, and for
the improvement and honour of surgery, I was inspired by God with
that good thought.' Ambrose Paré earnestly implored surgeons to
'bid eternally adieu to all hot irons and cauteries used in arresting
hæmorrhage' in amputations and other wounds,—an advice which
the operators of those dark and cruel times of surgery were careful
not to follow, but persecuted him exceedingly on account of his
beautiful and simple proposal of using nothing but deligation in
amputation wounds. In these later and milder times of surgery, we
cannot bid adieu to the ligature, because there are some conditions
in which acupressure cannot be used, as there are others in which it
is impossible to employ the ligature ; but, while many great opera-
tions have such a high rate of mortality in the practice of *all* good
surgeons in *all* countries, it seems a duty not ' to rest and be thank-
ful,' but to receive, and gratefully to adopt, acupressure, in the hope
that some of the sources of danger may be modified or entirely
removed."

Art. 87.—*On Acupressure.*

By Dr. P. H. WATSON, F.R.S.E., Lecturer on Surgery, Surgeon to the Royal Infirmary and Chalmers' Hospital, Aberdeen.

(Edinburgh Medical Journal, July, 1865.)

Dr. Watson expresses the following opinions, as the result of his own observations, on Acupressure :—

"1. Acupressure may be employed as a hæmostatic agency in the instance of vessels as large as the posterior tibials without risk, so far as bleeding, immediate, consecutive, or secondary, is concerned.

"2. Acupressure is easy of application, while its adaptation to situation and circumstances is as great, or it may even be greater, than that of the ligature.

"3. Acupressure is more trustworthy and satisfactory than either torsion, compression, or use of the cautery.

"4. Where primary union can take place, acupressure is likely to favour its occurrence; and, in three of the cases described, seemed of material service in this respect.

"5. In the cases described, where suppuration and sloughing occurred, this was altogether independent of the use of acupressure, or the absence of the employment of the ligature, and referable to causes inherent in the individual cases.

"6. In my opinion, the employment of acupressure in one or other of the methods suggested by Professor Simpson is safe, satisfactory, and well worthy of an extended trial."

SECT. II.—SPECIAL QUESTIONS IN SURGERY.

(A) CONCERNING THE HEAD AND NECK.

Art. 88.—*Polypi of the Larynx: Removal by Division of the Thyroid Cartilage.*

By Dr. GILEWSKI.

(Wiener Med. Wochenschr., June 28 and July 1, 1865; and
British Medical Journal, September, 1865.)

The following interesting case is related by Dr. Gilewski, of Cracow :—

CASE.—A girl, aged sixteen, came under his care, who had suffered during several months from hoarseness and noisy breathing (especially at night). At the anterior angle of the glottis were three polypus excrescences, partly of fleshy, partly of mucous aspect; one was larger than a pin's head, and the others were nearly of the size of peas. At each forced expiration they were carried somewhat backwards, but the epiglottis pre-

vented them from being well seen with the laryngoscope. It was still more difficult, or rather impossible, to apply a ligature, on account of the violent reflex movements that were excited, and of the narrowness of the opening. It was therefore considered necessary to make an artificial opening for the removal of the tumours ; and the operation was accordingly performed in December of last year.

The patient having been narcotised, an incision was made in the middle line of the neck, so as to expose a part of the thyro-hyoid membrane, the larynx, and the trachea as far as the second ring. No hæmorrhage attended this part of the proceeding ; and the patient had regained some conscious-ness. A sharp bistoury was now inserted at the upper edge of the cricoid cartilage, and the crico-thyroid membrane was divided as far as the lower border of the thyroid cartilage. Air escaped audibly through the opening. A probe-pointed bistoury was now introduced ; and, the parts being held tense by a hook inserted above the second tracheal ring, the incision was continued to the upper border of the larynx. The patient began to cough and was very restless ; but the hæmorrhage was slight. Dr. Gilewski then held aside the divided parts by a hook inserted in the middle of each side of the wound, so as to be able to view the whole interior of the larynx. On making an inspection, Dr. Gilewski was astonished to find the mucous polypus, which had appeared as large as a pea, reduced to two small pale remnants of areolar tissue lying in the edges of the wound at the anterior angle of the glottis ; near it was a nipple-shaped hard excrescence as large as a pin's head ; it had a pale colour, as had also the neighbouring mucous membrane, which was in a slightly catarrhal state. No other tumour could be discovered ; and the small one above described was removed by means of scissors. The disappearance of the larger tumour was attributed to its having been emptied of its contents, partly by the incision, and partly by the paroxysm of cough which attended the operation. A little watery fluid had been observed to escape when the incision was made into the thyroid cartilage. The operation was scarcely ended when the patient fell into a syncopal state ; this Dr. Gilewski attributed, not to the operation, but to the length of time during which anæsthesia had been kept up, and the quantity of chloroform which it had been necessary to use. She soon re-covered under the use of ordinary means. The wound was united by strips of plaster, and a small dose of morphia was given. On the fourth day sup-puration set in ; and in the third week the external wound was closed. The patient remained free from fever ; the breathing was perfectly easy ; but there was some difficulty in deglutition. From time to time fragments of food entered the larynx, and were discharged by coughing through the ex-ternal incision. As the closing of the wound advanced, the speech became more distinct ; but there still remained some hoarseness, attributable, without doubt, to the fact that union took place much later in the thyroid cartilage than externally, and that the mucous membrane was in a congested state during the progress of the suppuration. On making a laryngoscopic examination four weeks after the operation, nothing could be learnt as to the condition of the parts, as the epiglottis was even still more inclined backwards than it had been. The cicatrix in the neck rendered the larynx fixed, so as to slightly impede deglutition. At the beginning of March the voice rapidly improved, and became clear and somewhat deep in pro-portion to the age of the patient. At the time of reporting the case, several months after the operation, there had been one transient return of hoarse-ness, attributable to acute catarrh.

In commenting on this case, Dr. Gilewski refers to the obser-vations of Rauchfuss and Ehrmann, and expresses his opinion that

in persons of advanced age there are not only great technical diffi-
culties in the way of dividing the thyroid cartilage, but there is fear
of the ready occurrence of perinchonditis, and even of suppuration
of the entire cartilage. The operation is contra-indicated if there be
reason to suspect hardening or ossification of the part. The divi-
sion of the cartilage is best performed by means of a sharply-cutting
probe-pointed bistoury, the larynx being fixed by a hook. A director
seems especially useless, as the operator's attention must be directed
to two instruments, and the larynx must be steadied by an assistant.
Moreover, the vocal chords escape by lying on each side of the bis-
toury, whereas, if the knife slipped from the director, it would not
be possible to avoid wounding them. The larynx is best held open
by simple fine sharp hooks, one fixed in each side of the incision.
The wound is best united by plasters; but, if it be very long, there
would be no objection to a suture. Anæsthesia is advisable only in
the first stage, until the larynx is perfectly exposed. Consciousness
on the part of the patient is of important service, should there be
any hæmorrhage during the principal part of the operation. In
Dr. Gilewski's case, there was scarcely any hæmorrhage; and he
believes that none of any importance can occur while the two halves
of the larynx are held apart.

ART. 89.—Destruction of a Fibro-Cellular Tumour of the Pharynx by Electro-Puncturation.

By Professor FISCHER.

(*Wiener Med. Wochenschr.*, and *British Medical Journal*, Sept. 1865.)

Professor Fischer, of Innsbruck, relates a case of fibrous tumour
destroyed by electricity, after the plan practised in a case of nasal
polypus by Nélaton.

CASE.—A man, forty years old, who had always enjoyed good health,
found, in consequence of suffering pain on swallowing, a tumour on the left
side of his pharynx in November, 1864. It rapidly grew. He came into
hospital on February, 25th, 1865 ; he was wasted, and had a pallid, suf-
fering aspect. The pharyngeal cavity was obstructed by a solid tumour
attached to its left wall. The tumour pushed forward the soft palate. The
compressed left tonsil was pushed forward towards the dislocated uvula.
With some difficulty and bleeding from the tumour, the finger could be
passed over the larynx, which was pressed towards the right side, along the
unaffected pharyngeal walls, but could not reach either the upper or lower
boundary of the tumour. Externally the tumour was visible from the angle
of the lower jaw to the cricoid cartilage. The left nasal opening was also
obstructed. The respiration was difficult ; speech incomprehensible ; the
swallowing of fluids was difficult, of solids almost impossible. The suffering
at times was very great. The glands around were unaffected. The tumour
was regarded as fibro-cellular. Extirpation seemed impossible. Professor
Fischer, therefore, resolved to attempt its destruction by electro-puncture.
The first attempt was made on February 26th. Grove's battery, with
a platinum surface of 100 square inches, was employed. Two electro-

puncture needles—one connected with the zinc, and the other with the platinum pole—were inserted through the soft palate deep into the tumour. After the stream had been passed for about six minutes in one direction, other points of puncture were made, until all parts of the tumour which could be reached had been subjected to the electricity. At the puncture points of the zinc pole, a whitish scum, accompanied with a hissing sound, was observed when the circle was closed; but no change was perceptible at the platinum pole. The operation lasted about twenty minutes. The patient felt, in addition to the punctures of the needles, a moderate sensation of burning when the stream was in action. During the night following the operation, the patient suffered great pain in the tumour and increased dyspnœa. Next morning the tumour was found enlarged, and the needle-points ulcerated. On March 3rd the operation was repeated; and, in consequence, the pain, dyspnœa, and dysphagia, were so increased, that Dr. Fischer feared to repeat the operation. From the 5th to the 27th March, the ulceration of the punctures increased; the stench from the mouth was insufferable; the glands of the neck were infiltrated; and the fever high. The tumour, despite the partial gangrene, gradually increased; so that, at the end of March, swallowing was almost impossible, and the patient exhausted to the last degree. On March 29th, the electro-puncture was repeated; and from this time forward, the tumour began gradually to decrease, the ulceration of the punctures still increasing. The patient, who was reduced to a skeleton, gradually recovered, as the dyspnœa and dysphagia diminished. On the 6th and 25th of April and on the 17th of May, the electro-puncture was repeated; and at the end of May the patient might be considered as cured. In fact, on the last examination made on June 2nd, no tumour could be found in the pharynx; but only a callous thickening of the left wall of the pharynx. The uvula had returned to its proper place; speech was perfectly restored; and breathing and swallowing in no way impeded.

ART. 90.—*Case in which a Sixpence was lodged in the Larynx during Ten Weeks.*

By Dr. J. B. SANDERSON and Mr. J. W. HULKE.

This case was communicated to the Royal Medical and Chirurgical Society :—

" On November 2nd the patient was conversing in a public-house, having a sixpence in his mouth, when something in the conversation having excited his laughter the sixpence disappeared, and immediately he fell to the ground suffocated. For about an hour there was excessive dyspnœa, which, however, subsequently disappeared so completely that on the following day he experienced no bad effect from the accident, excepting that he was unable to speak aloud, and had slight dysphagia. During the succeeding ten weeks he lost flesh and strength, but experienced no difficulty of breathing, either on exertion or otherwise; the voice remained as at first. On January 6th his breathing again became embarrassed. After lasting for some hours the dyspnœa suddenly ceased, apparently in con-

sequence of his having tripped in going down stairs. On the following day he attended at Middlesex Hospital for laryngoscopic examination. The sixpence was seen without difficulty on the first introduction of the laryngeal mirror. It was horizontally placed in the glottis, below the false vocal cords, which covered a portion of its circumference at each side, being in such a position that a transversely oblong breathing space was left between its free edge and the arytenoid cartilages. Several attempts having been made without success to extract the coin through the upper opening of the larynx, by means of loops of wire specially contrived for the purpose, it was resolved to have recourse to laryngo-tracheotomy. An incision an inch and a half long was made in the middle line from the thyroid cartilage downwards, the edges of which were held apart above and below with two pairs of Trousseau's dilators. The coin could be readily felt by forceps introduced through the wound. Several attempts were made to seize it, in one of which it was displaced upwards into the patient's mouth. At that instant the patient made a sudden gulp, the coin slipped out of reach, and the patient, who had become conscious, made signs that he had swallowed it; it was recovered on the following day. After the operation the patient progressed so favourably that he was able to leave the hospital on January 18th, feeling no effect from the accident, excepting that the voice was still husky and feeble. By February 20th it had regained its natural character."

Art. 91.—*On Excision of the Upper Jaw.*

By Wm. Fergusson, F.R.C.S., F.R.S., Surgeon-Extraordinary to the Queen.

(*Lancet*, July, 1865.)

In his lectures "On the Progress of Surgery during the Present Century," delivered before the Royal College of Surgeons, Mr. Fergusson made the following observations on this subject:—

" The modern idea with regard to the removal of tumours in the upper jaw has been associated with excision of the whole of that bone; and the operations of Gensoul, Lizars, Syme, and others, who were the earliest advocates of this proceeding, seemed to imply the absolute necessity of removing the whole of it. The essence of the operation, so to call it, consisted in isolating and cutting through parts of the extreme points or circumference of the bone— even the sacrifice of the malar bone by dividing the zygoma. The round bulging part of the bone behind at the pterygo-maxillary fissure, the orbital plate, its margin or whole extent, the nasal surface, and the palatine plate, were all marked out for removal in excision of the upper jaw. Now, whilst not inclined to call in question the propriety of what was done and advocated by these early operators, I fancy that a better style of surgery has made such sweeping proceedings scarcely needful. It does not appear that

much was done in former times for the removal of such growths. A
few rare cases have been recorded on which operations were per-
formed ; but such proceedings were far between, and had no posi-
tion in the roll of our operations.   So, when modern surgeons began
the excisions now so extensively recognised, tumours of a large size
were more frequently met with than in the present time; and hence,
perhaps, the necessity of reaching those outside points that I have
just referred to.   But in recent days the surgeon interferes at an
earlier date, and before a tumour has implicated the bone exten-
sively.   It is in such instances that I believe there is room for im-
provement both in diagnosis and practice, and it is here that I make
so bold as to propose that which I conceive to be different from
ordinary accredited proceedings.

   " In operations on this bone, as on the lower jaw, and as with
bones in other parts of the body, I take the liberty to protest
against the doctrine that the whole bone must be taken away when
there is tumour present.   Indeed, it is largely in consequence of
what I have seen in the maxillæ that I have come to the practical
conclusion that total excision is not always needful in the case of
tumours.

   " Again I express my conviction that, in removing diseases of
the upper jaw by the extensive separations referred to, the modern
surgeon has been amply justified ; but I feel equally confident that
in many cases there is, or has been, no need for such destructive
work.   The malar bone, for example (separated, be it observed, by
an articulation from the maxilla, and therefore not within the scope
of certain so-called physiological or anatomical laws) has often been
removed, although there has been no trace of disease upon it ; but
all for the sake of making sure of the total extirpation of the jaw-
bone.   Now I make bold to say that all this destructive surgery
may in many instances be avoided, and that partial excision will
prove, on the whole, as effective here as I am convinced it does in
other parts.   In certain instances the malar bone may be saved ; in
others the surface next the pterygo-maxillary fissure need not be
interfered with; in many the floor of the orbit need not be touched,
nor the nasal surface, nor the palatine plate.   Much regarding these
views will depend on the individual character of the disease ; but of
this I am convinced, that in the majority of such cases one or other
of these parts may be saved.   It is scarcely possible to overrate the
advantage of saving one or more of them, nor do I doubt that a
general feeling must be on my side in this opinion.   But the question
may be asked, How can such parts be saved ?   My answer is, to let
them alone when they do not seem to be involved.   But, again, it may
be asked, How can you let them alone if division is to be effected at
such extreme points as the zygoma, at the outer side of the orbit,
the apex of the nasal process, the junction with the other maxilla in
the mesial line at the alveoli below the septum, along the roof of the
mouth, and also at the palatine junction with the palate bone?
Hard questions seemingly ! yet, in my opinion, as easily answered
as anything associated with conservative surgery.   Just take away
that which is in disease, and leave that untouched which is in
health."

Art. 92.—*Traumatic Diffused Aneurism in the Orbit.*

By Dr. Szokalsky.

A shoemaker, fifty years old, received a severe blow from a piece of wood on his left temple. The external orbital margin remained tender, especially on pressure, the eye after a time began to protrude, and a soft swelling was formed on the left temple. A few weeks after the blow the patient came into the Warsaw hospital. The left eyeball was then considerably protruded, and pushed downwards and inwards; its movements were very limited, and there was troublesome diplopia. Between the eyeball and the upper and outer margin of the orbit was a flattened tumour, sharply defined in front, clearly pulsating, and with its posterior boundary out of reach. On the left temple was another swelling, round, and as large as a dollar, lying deep between the bone and the temporal muscle, and extending forwards as far as the linea arenata frontalis. Pressure upon either swelling produced tension of the other; both had pulsation isochronous with the impulse of the heart; bruit was heard in both; and pulsation and bruit were alike stopped by compression of the common carotid. The point of union of the zygoma with the temporal bone was painful: and here a fissure could be felt, extending backwards in the outer wall of the orbit. The diagnosis was diffused aneurism, originating in branches communicating through the bone, between the deep temporal and the lacrymal artery.

An endeavour was first made to procure the disappearance of the tumour by continued compression of the carotid. After two or three days, however, it became necessary to abandon this attempt, on account of the skin of the neck becoming excoriated. The patient was discharged for a time, and returned three months later with his eyeball still more prominent, and with the orbital tumour reaching to the external canthus, and nearly in contact with the temporal tumour. Vision was lost, and the cornea was turbid. The common carotid artery was then ligatured. There were no cerebral symptoms. The pulse returned in the temporal artery after four days, but the swellings remained hard and immovable. After six weeks they began to diminish, and the eyeball to return; but vision was not restored.

Some time afterwards the cure was perfect; but it is remarkable than an aneurism as large as a pigeon's egg had formed on the coronary artery of the ileum—thus showing great fragility of the arterial system.

Of this case Dr. Geissler observes that it stands alone as regards the communication between the orbital and temporal swellings, and there are only thirty-six recorded cases of diffused aneurism of the orbit certainly of traumatic origin. Of these, ligature of the common

carotid was practised in twenty-three—sixteen times with good results, five times with imperfect results, and twice with death.

Art. 93.—*The Production and Diagnosis of Fractures of the Roof of the Orbit.*

By Dr. Herrmann Friedberg.

(*Virchow's Archiv*, 1864; and *Schmidt's Jahrbücher*, vol. cxxvi.)

Fractures of the roof of the orbit are either *direct*, from foreign bodies entering the orbit, or they are continuations of fractures commencing on other parts of the skull—the so-called *radiating* fractures. These, however, are to be considered as direct; since it is immaterial to the definition whether only the part actually struck be fractured, or whether the fissure extend itself. Those fractures only should be called *indirect* in which, between the seat of injury—whether this be fractured or not—and the more or less remote fracture of the roof of the orbit, there is a portion of inter-vening bone, of which both tables remain unbroken.

It is well known that the diagnosis of radiating and indirect fractures of the roof of the orbit is a matter of great difficulty. That it should be timely made is also of great importance to prognosis; since the effects of an undiscovered orbital fracture may first become apparent when the seat of the direct injury is healed, and when the patient is supposed to be out of danger. In forensic medicine the questions hence arising may be of great interest.

Surgical writers have attached chief weight, as a means of diagnosis, to the occurrence of some hæmorrhagic effusion in the upper eyelid and upper half of the conjunctiva, in from twenty-four to seventy-two hours after fractures of the roof of the orbit. It is certain, however, that this symptom is not constantly present. In twenty-three cases Prescott Hewett found in eight no external sign of the injury; in five, effusion of blood into the eyelid only; in ten, effusion also into the cellular tissue of the orbit, leading in three to exophthalmos.

Dr. Friedberg has endeavoured to discover by observation and experiment what are the conditions which determine the presence or absence of this effusion of blood into the eyelid and cellular tissue. His important conclusions are given nearly word for word.

There are different channels by which blood effused into the cranial cavity may pass into the orbit. If it be above the dura mater, and if this membrane be unwounded, the blood may pene-trate into the orbit through the optic foramen, near to the sixth nerve, and will then lie within the tubular prolongation of the dura mater in the posterior part of the orbit. If the dura mater be wounded, the blood may still pass through the optic foramen, but external to the tubular prolongation, and between the roof of the

orbit and its periosteum, or through the superior orbital fissure at its anterior extremity, where the folds of dura mater at the edges of the fissure leave an opening of from a line to a line and a half in breadth. From here it may pass between the bone and periosteum of the roof of the orbit to the external and anterior portion. The adhesion of the periosteum to the roof of the orbit, on cutting through with a chisel from the anterior cranial fossa, is usually lax, excepting at the external side of the upper margin of the superior orbital fissure, on the inner side, along the suture between the upper margin of the thin lamina of the ethmoid and the middle margin of the orbital process of the frontal bone, and lastly, at the anterior border of the roof, in which situations the union is firm. If red fluid be injected through a small hole in the roof of the orbit the periosteum will be raised by it at all other parts. If the injection be forcible, the fluid will find its way between the periosteum and bone to the inner wall of the orbit, or will break through the periosteum, and reach the anterior part of the peripheral layer of fat.

If the roof of the orbit be removed, the supra orbital and frontal nerves may be seen through the remaining periosteum, nearly in the middle line ; and on the inner side of these nerves the periosteum is thinner than external to them. On opening the periosteum, we see proceeding from it numerous very delicate processes, which unite with the cellular tissue of the orbit, and in two firm fasciculi with the lacrymal gland. The orbital fat may be divided into two portions—the peripheral, which surrounds the muscles, contains besides the nerves above mentioned, the superior ophthalmic vein, and is thickest before and behind the eyeball, thinnest at the equatorial region ; and the central, which is situate within the funnel formed by the muscles.

If we pierce both the bone and the periosteum, and inject red fluid, we see swelling of the upper eyelid without reddening of the conjunctiva. The fluid penetrates to the anterior part of the peripheral layer of fat behind the tarso-orbital fascia, separates these structures, and descends along the tendon of the levator palpebræ into the eyelid. If we then examine the parts from before backwards, we have to divide skin, muscle, and tarso-orbital fascia in order to arrive at the colouring, which is found immediately behind the fascia, and in front of the anterior lamella of attachment of the levator palpebræ. This lamella descends in front of the upper margin of the tarsal cartilage, and unites with the sphincta palpebræ close under the tarso-orbital fascia. The tendon of the levator is inserted in two lamellæ—namely, the above described— and a posterior, that attaches itself to the anterior surface of the tarsal cartilage. The injected fluid can only penerate to the peripheral layer of fat by forcibly separating the membranous processes that connect the periosteum of the orbit with the investing sheath of the fat.

On the side applied to the ocular muscles the peripheral adipose layer is invested by a delicate membrane, a fold of which passes between the levator palpebræ and the superior rectus as far as the

point where the latter perforates Senon's capsule, and then blends, partly with the common investing membrane of the ocular muscles and of the central fat layer, partly with the elastic margin of Senon's capsule itself. This elastic stratum lies behind the palpebral fold of conjunctiva, and reaches as far as to the upper margin of the tarsal cartilage, where it lies between the conjunctiva and the already described tendon of the levator muscle.

If red fluid be injected into the peripheral adipose layer itself, it penetrates (according to its point of entrance and to the injecting force) either into the posterior part alone, leaving the eyelids un-affected, or into the anterior part. In the latter case the fluid will be found, as above indicated, between the tarso-orbital fascia and the anterior lamella of the tendon of the levator muscle.

If the injecting force be sufficient to separate the muscles from these sheaths, the fluid will then pass between the levator and the superior rectus, upon the common muscular investment, into the elastic stratum of Senon's capsule. It will then appear as a sub-conjunctival hæmorrhagic effusion into the upper, sometimes also into the lower eyelid, sometimes of the eyeball itself. It is rare to find such effusion into the lids alone, the eyeball not participating.

Artificial exophthalmos was produced by Dr. Friedberg in two ways. It sometimes followed, but not always, when a large quantity of fluid was forced between the orbital periosteum and the peripheral adipose layer, the perforation being plugged by leaving the canula in situ. It invariably followed injection into the central fat layer.

The author arrives at the following conclusions, which he desires to test by clinical observation, since accurate anatomical descriptions of orbital fractures have not hitherto been recorded. He expressly states that his conclusions only apply to the first days after the injury, before the symptoms have become complicated:—

1. When the fracture produces little or no hæmorrhage, and the orbital periosteum is unwounded, there will be no effusion under the conjunctiva or in the eyelids.

2. When the orbital periosteum is wounded, and the quantity of blood effused is not too small, such blood may penetrate into the upper lid, and be found between the tarso-orbital fascia, and the tendon of the levator.

3. When the peripheral adipose layer is injured, or when its vessels are torn, there will be sub-conjunctival ecchymosis of the eyeball and of the upper lid, or of both lids, and sometimes of the lids, but not of the eyeball.

4. Subcutaneous ecchymosis of the lids does not follow from fractures of the root of the orbit, since the openings of the tarso-orbital fascia are perfectly filled by the vessels and nerves that pass through them, and there is no channel by which blood effused behind the fascia can become subcutaneous.

5. Protrusion of the eyeball may occur when the periosteum is wounded, and when the effused blood accumulates in quantity upon the hinder portion of the peripheral adipose layer, or beneath this portion, or in the central layer.

While examples of radiating fracture of the roof of the orbit are numerously scattered throughout medical literature, Dr. Friedberg has found only four in which the weapon inflicting the injury did not enter the orbit, and yet in which the roof of the orbit was the only part fractured. Of these, one was recorded by Bohn, in the year 1669, and in this a fissure, an inch and a half in length, was formed in the roof of the orbit by a blow from a stick on the temple; one has been described by Prescott Hewett; one by Dr. Friedberg himself; and one recently by Coccius. In this last the roof of the orbit was broken into several pieces, and the fragments displaced inwards, by the pressure of forceps upon the fœtal head during delivery. The child, when born, had extreme and irreducible exophthalmos, with hard inelastic resistance behind the displaced eyeball, the cornea became turbid, and sloughed on the eighth day; and the child died on the fourteenth day from suppurative meningitis. A little effusion of blood was found above the fractured bone; but none beneath it, or in the orbital cavity.

(B) CONCERNING THE TRUNK.

ART. 94.—*Case of Fracture of the Spine, in which the Operation of Trephining was performed, with Observations.*

By ROBERT M'DONNEL, M.D., F.R.S., Fellow of the Royal College of Surgeons, Surgeon to Jervis-street Hospital, Lecturer on Surgery in the Carmichael School of Medicine, Examiner in Surgery in the Queen's University.

" Joseph Collins, aged thirty-eight years, a thin, spare man, ordinarily employed at labour, was admitted to Jervis-street Hospital on December 28th, 1864. A short time before, while working in the hold of a vessel, from which a cargo of wheat was being discharged, a sack of corn had fallen upon him from a height of seventeen or eighteen feet. The weight fell upon the back of his head, neck, and shoulders; he sank beneath it, and, to use his own expression, was 'doubled up.' Immediately after the injury his lower limbs were powerless; he was at once conveyed to hospital, where I happened to be at the moment of his admission; I had, in consequence, an opportunity of examining his spine at the seat of injury before any tumefaction had occurred. I found that the spinous processes of a vertebra, corresponding with either the first lumbar or the last dorsal, was more prominent than natural, while a marked depression, leaving no doubt whatever as to the existence of displacement between the vertebræ, was to be felt in the place of the spinous process of the vertebra above. When a circle was made round the body, at the level of the umbilicus, with a piece of cord, the prominent spinous process was found to be exactly four inches above

this circle ; it was accordingly fixed upon as being the spinous process of the first lumbar vertebra. The lower limbs were para-lysed, as were also the bladder and rectum. The urine drawn off by catheter was not bloody. At a consultation on the afternoon of the day of the patient's admission, and again the following morning, I urged as strongly as possible the necessity for operation. I could not, however, induce the majority of my colleagues to take my view of the case.

"It is hardly necessary to detail the progress of the case during the days which immediately followed ; the loss of power of motion and of feeling became more marked than just after the injury ; the urine dribbled away ; the fæces were passed involuntarily ; on the ninth day the urine was neutral ; on the eleventh alkaline, and containing copious muco-purulent deposit ; a few days later it be-came bloody, and of a most offensive odour. Although placed on a water bed, and attended to most carefully, bed sores formed ; the penis became ulcerated, and the scrotum œdematous, and of great size. He suffered from thirst, flatulence, and pains over the bladder.

" During the last days of January my friend, Dr. Brown-Séquard, happened to arrive in Dublin ; he saw the patient with me, and thought that even still operation offered a chance for life, instead of certain death ; the majority of my colleagues agreed, and with the patient's consent, indeed at his urgent request as soon as he understood the hopeless nature of his case, the operation was deter-mined upon.

" I now copy from my note-book the details of the case from day to day.

" *Condition immediately previous to Operation.*—Dr. Brown-Séquard arrived in Dublin on January 30th ; the following morning he accompanied me to visit the patient. He was then carefully examined and was found in the following condition :—Pulse 100, regular, but feeble ; tongue clean, rather dry ; had rested tolerably well the previous night ; no headache ; complains of flatulence, and has a tendency to diarrhœa ; bladder completely paralysed ; urine constantly dribbling away ; no urine accumulates in the bladder ; he is absolutely unconscious of the discharges passing per anum ; and fluid fæces ooze incessantly from the rectum ; the penis is swelled, and the prepuce ulcerated from constant contact with the urine ; there is an ulcer as large as a sixpence at the root of the penis, in the fold between the penis and scrotum, and the whole scrotum is swelled, red, and superficially excoriated ; back, over the sacrum, ulcerated to a considerable exent, but, except in one small part, not deeply ; at this one part matter can be pressed out, showing that the ulceration extends to some depth under the skin. Upon the inner ankle of left foot, and the outer ankle of the right two smaller spots (dry and scabbed) exist, where ulceration has occurred apparently without pressure of any kind having taken place. Paralysis of motion is almost complete in both lower limbs ; in this respect they are exactly alike. On doing his best to produce a movement in the legs, a slight motion is perceived in each groin ;

the muscles of the thigh above the knee, and of the calf, and of the toes, are motionless; no reflex movement can be excited; sensation is normal along the thighs, over the skin of the calf and shin; rubbing or pressing on the sole of the foot is not perceived; he can, as regards the thigh and calf, distinguish the compass points at the usual distance, as in persons who feel normally; he can tell what part of the thigh or calf is touched by the hand, and in these parts distinguish, with precision, heat and cold, and also pricking with a point. There is no difference in these respects between one limb and the other; in each foot sensibility is much impaired, and the sole of each is devoid of feeling altogether.

" *Operation.*—I operated on February 3rd, 1865. My colleagues, Drs. Hughes, Stapleton, Banon, Tyrrell, and Forrest were present. Dr. Brown-Séquard was also present, and many surgeons of Dublin.

" The patient was not removed from the ward or from the bed on which he lay. This was in order, as far as possible, to avoid disturbing any callus which might possibly have already formed. He was put under the influence of chloroform as he lay on his back in his accustomed position; when chloroformed, the bed was carried opposite to the window. The patient was turned over on his face; in this position the seat of the injury was obvious from the prominence of the last (?) dorsal vertebra. A small spot of ulceration, not so large as a sixpence, existed over the most prominent spinous process at this part.

"An incision, nearly five inches long, was made with a strong scalpel over the spinous processes of the vertebræ (the two last dorsal and the two first lumbar); then, with a strong curved bistoury, the slips of tendon on each side of the spines were divided. Keeping quite close to the bone the mass of muscle was detached on each side, and securely held apart by broad retractors, well suited for the purpose. The spinous processes, and laminæ, in fact, the back of each vertebra as far out as the articulating process was thus fairly and fully exposed. The spine of each exposed vertebra was then taken hold of in a strong pair of necrosis forceps, and cautiously but firmly shaken to try whether any fracture of the posterior arch, or of the processes, could be detected. No such fracture existed. (This I expected, as I had reason to suppose from the nature of the injury, that if any fracture existed it was one of the body of the vertebra).

" On examination I was satisfied of the displacement existing in the parts with which I had to do; it was as follows :—The last dorsal vertebra (?) was as it were twisted, so that on the left side the articulating process was raised up, and although not completely dislocated, yet it stood prominently backward from the corresponding process on the bone below; on the right side the superior articulating process of the same vertebra was in exactly the opposite predicament; it was displaced so as to be as if pushed in deeper than the process to which it corresponded on the vertebra above.

" I determined to remove the spinous and inferior articulating processes of this vertebra, by cutting through the laminæ. After waiting for a time while sponges and cold water were applied to

stop bleeding, I first took off a part of the spinous process of the part I was going to remove; and divided the interspinous ligaments above and below. I next, with a strong pair of bone forceps, cut through the lamina on the patient's left side (on which side I stood myself). This, owing to the displacement I have already described, was quite easily effected, as of course the lamina, as well as the articulating process, was raised up somewhat on this side. On the right side, however, the opposite state of things made it much more difficult to succeed in cutting through the lamina. I could not succeed at first with the cutting forceps, but was obliged to use a Hey's saw, guarded so that it could not go in beyond a certain depth.

" I was unwilling to use the saw, lest the unavoidable shaking might injure any callus already thrown out, and tend to undo any repair that nature had already commenced.

" I finally succeeded in dividing the lamina on the right side with the forceps ; I then grasped, in a pair of necrosis forceps, the root of the spinous process of the portion thus separated, and raising it cautiously, divided, with a scalpel, the ligamentous structures which now alone prevented its removal. On sponging away the blood, the theca vertebralis came into view ; a small portion of the arch of the vertebra above was also removed with gouging forceps. The spinal cord was obviously pushed backwards, and had lain very close under the arch of bone taken away. The vertebral theca was not tense ; there was no evidence of either blood clot or fluid being pent up within it; it was therefore not opened, although I had at first intended to do so.

" Slight venous hæmorrhage took place from the veins underneath the bone.

" The operation lasted about an hour ; it was protracted by long rests now and then, waiting until the sponging with cold water and infusion of matico checked oozing of venous blood, as it was neces-sary to see with great precision what one was doing. I do not think that more than five, or at the most six, ounces of blood was lost. A couple of sutures were put in at the upper part of the wound ; the lower part was left open, a small tent of soft sponge alone being introduced.

" *Notes immediately subsequent to Operation.*—The patient was replaced upon his back, pads of spongio-piline being placed above and below the wound, and the sacrum protected by a circular cushion. He lay on a water-bed, nearly flat, the head but slightly raised, and a cushion being passed behind the knees. He got an opiate enema ; while being arranged a jet of urine was thrown from the orifice of the urethra ; of this he was not conscious.

" The same evening he commenced taking the ninety-sixth of a grain of atropine in solution, to be continued three times a day.

" The bladder and the large intestine were carefully washed by injections of tepid water and thin flax-seed tea.

" Feb. 4th. — Day after operation, pulse 120, regular, but weak ; had rested tolerably, sleeping for a couple of hours at a time ; some headache, and heat of head and skin ; tongue dry, but not coated. When about to wash out the bladder, the urine was

observed to come in a jet from the orifice of the urethra; bowels had not acted since the previous day, the opiate enema having checked the diarrhœa; the pupil was not affected; the atropia was continued in the same dose as before; the penis and scrotum diminished in size, and the superficial ulceration better. In the afternoon, Dr. Brown-Séquard accompanied me to see him; we then found that sensibility had returned in the soles of the feet, and that a decided return of motor power had taken place in the muscles of the thigh. Complains of cough, which hurts him—in fact, he had caught cold from the exposure during the operation. Ordered iodidi potassii three grains, in decoct. cinchonæ flavæ, along with the atropia.

"Feb. 5th—Pulse 108. Skin warm, but natural; tongue moist; had rested tolerably; no headache; appetite returning; had an egg for breakfast, and asked for a mutton chop for dinner; cough much less troublesome. Dr. Brown-Séquard again this day examined him along with me; we observed some œdema of the left leg and foot; sensibility is now almost, if not quite, normal all over the foot and sole. The sartorius, hamstring, and quadriceps extensor femoris muscles are able to contract with considerable strength; we can perceive no sign of movement in the muscles of the calf, or in the toes; their motor power is still absolutely wanting. Marked improvement has taken place in the state of the penis and scrotum. I dressed the wound and the sore on the sacrum, causing the patient to be raised right up by five assistants; after the application of the dressing, he was replaced on the circular cushions as before; healthy pus coming from the sore over the sacrum. When he coughs he feels pains across the back. Bladder and rectum washed out as before."

The patient continued to improve with regard to motion, sensibility, and reflex phenomena up to the 17th, when he was seized with a rigor after being dressed. On the 18th, sickness returned, and on the 19th, diarrhœa set in. He did not sleep at all that night, but did not know what kept him awake, as he had no pain.

He died rather suddenly on the morning of the 20th, having been seen by the resident pupil about an hour before, and reproved for smoking, which he had been found doing by the night nurse. He was then apparently quite himself, and not in pain.

"*Post-mortem* examination, made the same day (20th), in presence of the pupils. Body much wasted; no œdema.

"*Head.*—Considerable subarachnoid effusion, also some clear serum in each lateral ventricle; brain structure and its membranes healthy.

"*Chest.*—Lungs healthy, indeed remarkably so; no old adhesions; heart normal; no fluid in pericardium.

"*Abdomen.*—Stomach and intestines healthy; no lodgment in any part of bowels; no ulceration in the rectum or other parts of the large intestine.

"Urinary bladder contracted to a small size, greatly thickened, and containing small collections of pus in its walls. Mucous mem-

brane ulcerated, and covered with ash-coloured shreds of adherent membrane; both ureters thickened, so as to be as thick as my little finger; the mucous membrane lining each was in the same condition as that of the bladder, and on the left side this extended all the way up to the kidney, the pelvis of which contained pus; its structure was disorganized by abscesses.

"On examining the bodies of the vertebræ on their anterior aspect there was no inequality which made it obvious where the injury had taken place. The lumbar and lower dorsal vertebræ were removed; the spinal cord and its membranes were taken out by cutting through the laminæ of the dorsal vertebræ. Subsequently the section was made. The dura mater of the cord was uninjured; the portion of it corresponding to the piece of bone removed at the time of the operation was covered externally with lymph; the surface next the cord was healthy; there was no trace of inflammation within the dura mater. The cord was not inflamed or softened; it was indented at a point corresponding to where the bone was displaced; and when the finger was passed along it gently felt as if softened at this indentation, but there was neither red or white softening of its structure, and this feeling was merely the result of pressure, which had not given rise to structural disorganization.

"The body of the first lumbar vertebra was fractured, and this vertebra was displaced backwards; the line of fracture separated only a small portion of the body of the broken vertebra. The intervertebral substance between the last dorsal and first lumbar vertebræ had been torn, and the body of the first lumbar was displaced backwards. A small blood-clot occupied the space above the projecting body of this vertebra, lying between the body of last dorsal vertebra and the anterior aspect of the dura mater of the cord. The spinal cord was, therefore, pushed backwards by this effused blood, as well as the body of first lumbar vertebra, not simply by the sharp ridge of bone."

In commenting on this case, the author successively reviews the several objections raised against the operation of trephining the spine in cases of fracture. Thus, he shows first that even when the irregularity and diminution in size of the spinal canal are due to displacement of the body of a vertebra, the removal of the posterior arch, against which the cord is squeezed, will give the latter room. The cord, he adds, will still pass over an eminence, caused partly by bone, partly by the blood-clot in front of the dura mater; but the cause of counter-pressure being removed, it is well known that, passing round an abnormal curve even greater than this, does not prevent the spinal marrow from exercising its functions. In some cases, the removal of two posterior arches will be required in order completely to free the cord from pressure. Of course, if the fracture be seated in a posterior arch, the operation will at once remedy the mischief. In a case of Boyer, quoted by the author, in which, at the *post-mortem* examination, a fracture of the posterior arch of the seventh cervical vertebra was found, with depression of a fragment which pressed on the cord, the operation

might assuredly have been the means of saving the man's life. With regard to the *theoretical* objections raised by some— namely, as to the degree of violence necessary for the performance of the operation, and the risks incurred by exposing the medulla, of causing inflammation, suppuration, and ultimately death — the author merely answers that, in his case, he had not to use any violence, and that experience has contradicted the opinion, that the operation is likely to be followed by inflammation and suppuration of the cord, or its membranes. Indeed, as regards the occurrence of meningitis, it is natural to suppose that, in trephining the spine, this would be less likely to occur than in trephining the skull, as in the latter case the dura mater is very closely adherent to the bone, while in the former it does not constitute a periosteal lining for the bone, which is without difficulty detached from it. Meningitis, going on to suppuration, was not a cause of death in any of the recorded cases in which *post-mortem* examinations were made after the operation ; whereas the author declares having seen three patients, not operated on, carried off in great suffering by suppurative meningitis, the whole cord being bathed in pus. If the operation be not performed, the patient has a very small chance of life, for it is well known that cases of recovery, after a fracture of the spine, with symptoms of compression of the cord, are very rare indeed ; one per cent. is greater than Sir Astley Cooper met with in his experience.

The important fact that *death after fracture of the spine usually is due to pressure or some excitation of the spinal marrow, not to partial or complete section of this organ,* is a powerful argument in favour of the operation. Patients with fractured spines usually die from the alterations of secretion and nutrition, the principal evidence of which is found in the rapid atrophy, the sloughing and bed-sores, the changed condition of the urinary secretion, the inflammation of bladder, ureters, and kidneys. More or less complete section of the cord does not give rise to these symptoms, or at least does not cause them to such a degree, as the prolonged morbid excitation resulting from pressure. The experiments of Henry Cline showed this long ago ; and in two cases of wound of the spinal cord in man, made by cutting instruments, seen by the author, one in the London Hospital, and another at the National Hospital for the Paralyzed and the Epileptic, London, the same fact was noted.

To the memoir is appended a table of reference to all the cases which the author has been able to find out, in which an operation has been undertaken to remove portions of bone pressing on the spinal marrow. These amount to twenty-six cases, in seven of which life has been preserved; and this is the most conclusive argument in favour of the operation of trephining the spine in cases of fracture, attended with symptoms of pressure on the cord.

ART. 95.—*On the Nature and Treatment of Gun-shot Wounds of the Intestines, with Experiments on the Cadaver.*

By TEMPLE S. HOYNE, B.S., M.D.

In cases of gun-shot wounds of the intestines, surgeons have been well-nigh unanimous in recommending that the patient should be kept quiet, and deprecating the exploration of the wound. M. Legouest (*Traité de Chirurgie d'Armée, Paris*, 1863, p. 520), has recommended a different course. He thinks that the surgeon should introduce his finger into the wound of the abdominal wall and seek to discover the injured intestine, which should forthwith be drawn out (the external opening being enlarged if necessary) and sewn up.

To throw additional light on this subject, Mr. Hoyne instituted a series of experiments on the dead body, and with the following results :—

" In four experiments round balls were used, from which sixteen wounds were caused, being an average of four to each ball. In fourteen experiments conical balls were used, causing seventy-four wounds—an average of 5.29 for each ball. The whole number of experiments was thus eighteen, and the number of wounds ninety, being an average of five for each ball. In two of the experiments the intestines were uninjured. The mesentery was wounded fourteen times, and there was extravasation in ten cases. The largest number of wounds made by any one ball was ten. Longmore refers to a case in which a man, being shot in the abdomen whilst in the act of defecation, was found, after death, to have received sixteen wounds of the small intestine.

" In view of the experiments above recorded, it is apparent, we think, that the method of procedure recommended by Legouest must prove eminently dangerous. The fact that the intestine is almost always wounded at more than one point, and often in many points, renders it certain that the exploration would cause extravasation.

" This observation which we have now made is not new. Such— as we before stated—has been the opinion of nearly all military surgeons, but no one has before, to our knowledge, taken the pains to demonstrate the plurality of these wounds by actual experiments. Whether these experiments made upon the cadaver can be applied rigidly to the living subject, may be in the minds of some a matter of question. For ourselves, we have no doubt that they may be so applied. We consider, moreover, that having established the fact of the plurality of these wounds the inference is inevitable, without further experiment, that the practice recommended by M. Legouest, is unsafe."

Art. 96.—*Gun-shot Wound of Bladder.*

By W. H. Van Buren, M.D., Professor of Anatomy in the University of New York.

The bladder, distended by urine, perforated by an ounce musket-ball, which traversed the pelvis ; urine voided through the wound during fifteen days ; recovery without injury to the function of the bladder.

The following case of gun-shot wound occurred in the vicinity of Gramercy Park, in the city of New York, during the memorable riots of July, 1863. The subject, a well-known merchant, returning home from the business part of the city, heard musket shots in the vicinity of his residence, and went around the corner to ascertain the cause. He found himself exposed to the fire of the rioters, and, whilst in the act of protecting himself behind a tree, received the wound described below : —

Case.—L. L. J——, forty-six, married, and father of a large family, in sound health, and of good constitution, was wounded at five o'clock, P.M., on the 16th July. He had not emptied his bladder since leaving home, about nine o'clock, A.M.; had attended to his business as usual down town, and dined at Delmonico's at half-past three o'clock, P.M., drinking moderately of Bourbon whisky. Was conscious that his bladder was distended before receiving his wound. I saw him half an hour after he was struck ; he was pallid and moderately collapsed. Stated that when struck by the ball it seemed to him as though a football had hit him in the belly. His first motion was, to put his hand to the part, when he recognised that he was deluged with water (urine) ; he then sunk to the ground, and was carried to his house, about two hundred yards distant. I found a wound—which would readily admit my forefinger—in the lower part of the belly, an inch and a quarter to the left of the median line, and two inches above the brim of the pelvis. The finger passed to its full length into the wound ; could be moved freely in any direction in a cavity behind the abdominal walls, where nothing could be satisfactorily distinguished but coagulated blood. Urine still flowed from the wound, and the patient's trousers and shirt were saturated with it. In both of these garments there were rectangular holes, with obvious loss of substance. On careful percussion above the pubes, there was no evidence of distended bladder, or any collection of fluid, nor could anything abnormal be discovered from the rectum. Under the skin, on the back of the right buttock, about one inch above the summit of the ischiatic notch, a bullet could be distinctly felt. This was afterwards removed by a simple incision, and no exploration made by the finger from this quarter ; there was no discharge of urine from this incision— which healed kindly in a week.

The course of the ball was apparently, therefore, directly across the pelvis from left to right, and from before backwards on a level with the anterior superior spines of the ilium. No other lesion was discoverable. The abdomen was soft, natural, and not tender ; somewhat prominent—the patient weighing 165 pounds, and measuring five feet nine inches in height. His bowels, as usual, had moved naturally in the morning. The pain was slight, but there was strong and pretty constant desire to void urine, although not a drop could be passed through the urethra ; from time to

time a little would escape through the abdominal wound, tinging the cloths slightly with blood.

After a careful study of the indications for treatment which the case presented, it was decided not to introduce an instrument into the bladder by the urethra, and to favour the free flow of urine from the wound, as far as possible, by position. One-fourth of a grain of sulphate of morphine was ordered to be given at once, and repeated every second hour, with good beef-tea for nourishment, and nothing else, save ice and water moderately.

At ten o'clock, P.M., he was engaged in arranging some matters of business ; had recovered from collapse almost entirely ; no complaint of pain or desire to pass water ; pulse eighty, and of good volume ; abdomen soft and hot, tender on pressure ; urine flowing from the wound. Morphine continued.

From this date there was no bad symptom. The urine continued to flow from the wound freely, and without interruption. Its escape was found to be facilitated on moving the trunk or pelvis, and especially by rolling over upon the left side. The only dressing applied to the wound was a moistened rag.

The morphine acted very kindly, and it was repeated steadily, as first ordered, until the eighth day, when it was suspended to facilitate the action of a half ounce of castor-oil, which produced two copious stools, unaccompanied by pain or blood—the first motions since the day of the wound. Meanwhile there had been no pain whatever complained of, nor any on pressure of any part of the abdomen, which continued soft and supple, the colon only becoming moderately distended by gas, of which the patient was able to relieve himself *per anum*. The pulse on the third day reached 100, and showed a little hardness and tension. Nothing was done, and it gradually subsided. On the ninth day, after the action of the oil, it was sixty-six. After this the morphine was only administered occasionally, to quiet restlessness. On the seventh day, for the first time since the evening he was wounded, the patient felt a desire to pass water, and did so twice, with slight uneasiness in the act ; it was turbid in appearance, and deposited a sediment looking like pus. On examining this sediment by the microscope, however, it was found to consist mainly of vesical mucus and oil-globules, with some pus corpuscles, and a few crystals of oxalate of lime and of the triple phosphate.

On the eighth day, after passing water by the urethra, he experienced quite a severe pain in the right thigh, below the great trochanter, which lasted more than an hour, and for which he took a dose of morphine. This annoyed him so much that he preferred to empty his bladder through the wound, which he continued to do without difficulty until the fifteenth day, when I advised a new trial of the natural route. This was followed by less pain, and from this point he used the urethra entirely, at intervals of three and four hours. The wound, which up to this time had been coated by the urine salts, rapidly became clean, discharging only a trifling quantity of healthy pus. At this time, as there was no evidence of pelvic or abdominal trouble, that could be elicited by pressure, coughing, movements of the trunk and hip-joints, or action of the bowels, his diet was gradually improved.

On the twenty-second day the wound was entirely healed, and the patient's general condition in every respect satisfactory.

No shreds of clothing nor spiculæ of bone were discharged from the wound, and there has not been any abscess or evidence of local trouble. The temperature, during the first two weeks of his confinement, was never below 80°, varying from this to 92°.

"I have examined and conversed with Mr. J. this day more than eighteen months since his accident. He is in perfect health, and is not aware of any defect whatever in the normal performance of his urinary function; nor has he had any symptoms of trouble in this quarter since his recovery. At present he never has occasion to pass water more than four times in the twenty-four hours, and generally three times. Before his wound his calls were even less frequent, occurring as a rule, rarely more than twice in the twenty-four hours.

"The rapid recovery of this patient from so severe a wound was due in some degree, to his placid disposition and excellent nursing, but mainly, I suspect, to the very considerable distension of the bladder, at the moment the musket-ball traversed his pelvic cavity. The peritoneum was probably carried up by the distended bladder above the track of the ball, although, considering the point of exit, this cannot be regarded as certain. The entire absence of any symptoms of urinary infiltration into the connective tissue of the pelvis, is as remarkable as the escape from peritonitis, and is most readily explained by the size and directness of the abdominal wound, which afforded prompt and free outlet for the urine. It was this feature of the case which induced me to refrain from the use of the catheter, as generally employed in wounds of the bladder; and the prompt subsidence of the desire to urinate, after the first dose of morphine, conduced also to this course—which I see no reason to regret.

"The continuous presence of a catheter in the urethra and bladder of a man, already suffering from a most serious wound, is no trifling addition to the burden he has to bear, and although, in deference to all high authorities, from Chopart and the Larreys to Legouest and Hamilton, the use of the instrument is properly regarded as the rule in gun-shot wounds of the bladder, the result of this case demonstrates that the rule may be occasionally disregarded, to the advantage of the patient."*

Art. 97.—*Radical Cure of Inguinal Hernia.*

By J. Fayrer, M.D., F.R.S.E., Surgeon, Medical College Hospital, Calcutta.

(Medical Times and Gazette, August, 1865.)

The following method of operating for the cure of inguinal hernia Dr. Fayrer has found to be more simple and successful than that he had previously practised. It has, he states, so far, been unattended with any dangerous consequences, and, though it has failed in some cases to give complete relief, it has improved the patient's condition by enabling him to control the hernia more thoroughly by aid of a

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* In his recent admirable "Treatise on Military Surgery," p. 3718, Professor Hamilton records a case of recovery from gun-shot wound of the bladder, in which the catheter was never introduced.

truss. It appears to have the advantage of not confining the patient very long to his bed, the treatment seldom extending beyond five or six weeks, and the latter part of that not necessarily requiring confinement. The only disagreeable results that he has yet observed, and that only in one or two cases, was suppuration extending towards the thorax, between the abdominal muscles, giving rise to irritative fever and exhausting discharges; but this has not endangered life, and has quickly subsided on free counter incisions being made to give exit to the pus.

Sloughing of the integument at the seat of operation rarely occurs, beyond the death of a minute portion of it just where the needle emerged and the ligatures are tied; and in no case has he seen peritonitis to a dangerous extent take place; nor has hæmorrhage occurred, though it is difficult to understand how the epigastric artery always escapes.

The object of the operation is, as in the other methods, to invaginate a portion of the scrotum within the inguinal canal and secure it there. But Dr. Fayrer states his impression that the success of the operation does not depend so much on retention of the invaginated scrotum within the canal as on the formation there of a quantity of exudation and cicatrix tissue. He has frequently remarked that the success of the case did not depend on the invagination remaining in the canal, for he has seen successful results when the invagination had completely descended, and he has also not unfrequently seen the converse of this.

His impression of the operation is, that it is very often successful, but frequently unsuccessful, and that we are not able to speak so positively as to the result as we are in other operations, so much depending on the accident of how the exudation may be poured out, and in what direction, and how the cicatrix will form.

The chief element of success appears to him to consist in the careful introduction of the plug into the canal, that the end of it may press well against the internal abdominal ring. Much also depends on the subsequent dressing, and care on the part of the patient, not by any premature effort or over-exertion to force down the protrusion whilst the process of cicatrisation is yet incomplete.

The instruments with which he operates are very simple—two plugs of wood, silk ligatures, and a curved needle; one plug of wood about six inches long, rounded and compressed at the end and lengthways, and about the circumference of a man's thumb. This may be made of wood, ivory, or bone. Any wood will do, though, perhaps, ebony is the best. At one end it is pierced obliquely, and threaded with two strong ligatures made of the strongest ligature silk. These, before being used, should be waxed. A needle, made of strong steel, curved and inserted into a firm handle, with an eye at the point, through which the ligatures in the plug have to be passed. The curve of the needle amounts to about half a circle. In addition to these, a small blade or plug of hard wood or ivory, about an inch and a half long, three-quarters of an inch in diameter, and rounded, is required to tie the ligatures firmly over when the plug has been inserted into the inguinal canal.

The mode of operating is as follows :—The patient is prepared by having the bowels opened the night before. The pubes and scrotum are shaved and the bladder emptied just before the operation, which may be performed under chloroform if the patient dreads the pain. The forefinger of the left hand is then introduced within the external abdominal ring, pushing before it an invagination of the scrotum. Having introduced it as far into the canal as possible, the needle is threaded with one of the silk ligatures, and being held in the operator's right hand is gradually insinuated along the palmar aspect of the left forefinger until it reaches the extremity of the invagination ; it is then thrust boldly through the tissues lying over the finger, and emerges about one and a-half inches interiorly to the anterior superior spine of the ilium. The needle is then unthreaded and withdrawn. Again threaded with the second ligature, the process is repeated, taking care to pass the needle through the tissues, not quite at the same point in the canal as the first, but bringing the ligatures out at the same aperture in the integument. This is easily effected by drawing the yielding integument over the point of the needle until it emerges at the original point of exit. The needle is again withdrawn, and now the plug is insinuated into the canal whence the finger has just been withdrawn, and is tied tightly in the canal by the two ligatures being firmly knotted over the small piece of wood provided for the purpose. The plug, it is to be observed, should be well oiled, and introduced as the finger is withdrawn. Until recently Dr. Fayrer was in the habit of using various sized plugs, fitted to the size of the abdominal ring in each particular case, but he now finds that to be unnecessary, and uses only one size of plug. Its object is to support the invagination at the upper extremity of the inguinal canal, and not to exert any lateral pressure. It is to be understood, however, that the canal is to be sufficiently occluded to prevent any descent of the hernia by the side of the plug.

The subsequent treatment is equally simple. When free suppuration makes its appearance either by the side of the plug or round the ligatures, the plug should be withdrawn. The invagination is then supported by a pad, after sponging away the discharge and dressing the wound with simple dressing, and a spine bandage. The patient should be kept carefully in the recumbent posture. The bowels seldom act for several days after the operation, but the patient should be warned against straining if they should do so. An opiate is desirable after the operation to tranquillise the patient, and also to prevent any tendency in the bowels to act. It frequently happens that there is retention of urine. This is relieved by fomentation, or, if necessary, by the catheter. Abdominal tenderness requires hot fomentations ; and if any indication of peritonitis present itself, frequent and full doses of opium will be needed, but this in my experience is very rare.

In ordinary cases the wounds, scrotal and abdominal, heal rapidly, and all that is needed is careful dressing to prevent descent of the hernia. The patient should not walk until the wounds have healed, and then only with a well-fitting pad and bandage. When the wounds have thoroughly healed, the patient may take exercise with

a well-fitting truss, which should not be left off for three or four months, when cicatrisation may be presumed to be completed.

Dr. Fayrer tabulates 38 cases in which this method of operating was adopted, and of these, 24 were cured; 6 relieved; and 8 failed.

Art. 98.—*On Lithotomy.*

By Mr. Fergusson, F.R.C.S., F.R.S., Surgeon to King's College Hospital, Professor of Surgery in the Royal College of Surgeons, and Surgeon Extraordinary to H.M. the Queen.

(*Lancet*, June 24, 1865.)

The following observations are from Mr. Fergusson's lectures on the Progress of Surgery during the present century, delivered at the Royal College of Surgeons :—

"Two great objects have evidently been aimed at by all who have given attention to this operation—viz., rapidity of execution and safety of result; and, with due regard to perfection, there can, in my opinion, be little doubt that rapidity, even in these days of anæsthesia, is an advantage. But various opinions obtain as to the way in which this is to be secured, and it is perhaps a great danger that rapidity should be more in the mind of the operator than safety. If there is one operation in surgery in which dash is aimed at more than in another, it is in this. Dash here means rapidity perfectly accomplished; and with some this is achieved by free incisions, such as greatly endanger the structures and organs involved, whilst with others an amount of energy or force may be employed which may possibly be as dangerous (if not more so) as division of tissues with the knife. In fact, it may be said that at all times, in the history of lithotomy, there has been a question as to freedom or limitation of the incisions. The old adage of Hippocrates, that wounds of membranous parts are dangerous, has doubtless had its influence here; and as he had seemingly applied this term to the bladder itself, we may consider the Marian operation, and all others which have been intended to spare this organ, as having been devised in accordance with this maxim: hence, probably, the modern disquisitions, since Scarpa's time to the present day, as to limited or free incisions in and through the prostate. These all appear momentous questions, as they seem to involve the life or death of the patient. Yet who can solve them? What man of acknowledged reputation can say which is the safest and therefore the best manner of proceeding— whether rapidity or slowness, free incisions or limited, are the best? Few well-known men in modern days can boast of an experience such as that of Jacques, of Rau, or of Cheselden. Instead of the conjectural number of 5000 of Jacques, let us take the 213 of Cheselden, which he chose to refer to as his public practice in this operation. Of that number he lost only 20; yet I have it from Sir Benjamin Brodie, as a tradition which he had imbibed, that in the

latter years of Cheselden's practice, private as well as public, the results had been such as to cause him the greatest distress and mortification. But let us take it at the best of his own showing, and on inquiry we cannot perceive to what his success can be attributed. His own quaint idea that it was ' to the happiness of a mind that was never ruffled or disconcerted, and a hand that never trembled during any operation,' cannot have any influence with an experienced lithotomist in this important question ; for these qualities, certainly good of their kind, are such as have been possessed by hundreds and thousands, but they do not give us the key to successful lithotomy. Nor is it easy to see in what other respects Cheselden exhibited superiority. In dealing with the neck of the bladder he seems to have cut, at different times, in a direction from and towards himself respectively. The incision onwards from the membranous portion of the urethra to the prostate and bladder seems, in my estimation, to have been the favourite and that most frequently performed ; and my impression is that he aimed at rapidity of execution as a feature, for he in a manner boasts of having generally extracted the stone in a minute or two, or less. Yet most that Cheselden seems to have done has been effected in modern times, although not always with the same measure of success. I by no means, on such an occasion as this, wish to impugn the published and rumoured success of such distinguished men as Martineau, Blizard, Cline, Green, Crichton, Hodgson, and others ; but this, so far as I know, is certain, that none of them have had the numbers that Cheselden treated.

'' The causes of the successful issue or fatal result of lithotomy, in cases reasonably well selected and operations reasonably well performed, are problems of deep interest. It is now two-and-thirty years since I first performed lithotomy, and, with a large personal experience, I feel yet unable to offer decided opinions regarding these problems. Hearing, as I have occasionally, of wonderful success, I have had my suspicions that the expression has been used by some to indicate the mere extraction of the stone, and not the final issue of the operation. Breaking a stone in lithotrity, and extracting in lithotomy, have, I fear, been taken by some as the standard of success—the issue has been ignored! There seems to me to be a mystery associated with lithotomy that has not yet been solved. For palpable errors there is an explanation : but when, to all appearance, there has been perfection in the operation, and yet death has been the issue, I confess that I have been puzzled beyond measure. I have performed lithotomy without a shadow of strain, tax, or tension on the parts more than the needful manipulations, yet the issue has been fatal ; and again, I have been conscious of an amount of rudeness such as has made me tremble for the result, yet an untoward symptom has never once appeared. I have, indeed, seen badly-performed operations where nothing but death could have been anticipated, and where the anticipation was realized ; but I have known such an amount of force and haggling end successfully that I have been amazed. I have known several strong men pull at a nine-ounce stone for an hour, when the patient has been put to bed well-

nigh exhausted; yet on the stone being extracted eight days afterwards the final result was perfect. With such experience as I have I cannot pretend to explain these seeming mysteries. Working on inanimate material, no doubt precise manipulation must be of the most perfect effect; but when the phenomena of life are afterwards involved, the result seems in most instances to be beyond human control."

ART. 99.—*Forcible Dilatation in Painful Spasmodic Affections of the Urethra and Bladder.*

By Dr. ADOLPHE RICHARD.

(*New York Medical Journal,* June, 1865.)

Dr. Adolphe Richard, of Paris, has recently brought before the Société de Médecine de la Seine this plan of treatment, which he has imagined and considers somewhat empirical. He states that whenever neuralgia is not evident, the seat of pain must be looked for in the muscles, as in uterine colic, stone in the bladder, fissura in ano, &c., and it is produced by reflex action, originated in a manner not as yet well ascertained. Dr. Richard says that forcible dilatation will cure the severe pain in spasmodic contraction of the neck of the bladder. He has successfully performed lithotomy, when there were violent pain and constant incontinence of urine, with increasing exhaustion of the subject, without any evidence, however, of stone in the bladder. He performed the operation with a perfect knowledge of this latter circumstance, expecting to improve the condition of the patient, who was immediately relieved and got completely well. Dr. Richard has likewise applied forcible dilatation to cure spermatorrhoea. Looking upon this disease as frequently the hallucination of hypochondriac or nervous subjects, he only considers fit for his treatment those who are in the habit of experiencing a daily loss of semen. The plan has been tried in about twelve cases with a variable result, sometimes giving great relief, and in others producing a complete cure.

It is strange that Dr. Richard should call empirical the treatment he advocates, when it naturally suggests itself from what physiology proves to be the source of those reflex actions, which seem, to the French surgeon, not well known. Matteucci and Du Bois Reymond have demonstrated that a change in the galvanic state of the muscle, causing excitation of the nerve, is the cause of pain in the muscles, referred to by Richard. The first of these eminent physiologists states that a galvanic discharge and the muscular contraction always accompany each other; whilst the second thinks that a diminution takes place in the current of the muscle when it contracts; the electric change determining in either theories the irritation of the nerve and pain. In addition, Brown-Séquard proves that it is sufficient that a muscle tend to contract, to produce galvanic excitation of the nerves. Hereupon it is easy to perceive how forcible dilatation,

or tenotomy, is so effectual to make pain disappear after destroying the resistance of the muscles—the true efficient cause of the reflex actions producing it. Neither should Dr. Richard be considered as the first to apply this important physiological fact to the practice of surgery. Professor William H. Van Buren has insisted, in a very interesting paper read before the New York Academy of Medicine, on the advantages of forcible dilatation in the treatment of painful affections of the rectum. He was, perhaps, the first to demonstrate practically, and to bring forward, that such means is an important element of cure in many affections of the rectum; and that in all the cases it immediately removes the pain, being the simplest and most effectual remedy for fissure and irritative ulcer of the rectum: facts which perfectly agree with the rational and broader application of this treatment made by Richard, to the painful spasmodic affections of the urethra and bladder.

Art. 100.—*On Two New Specific Remedies for Gonorrhœa.*

By Thomas B. Henderson, M.D., F.C.P. and S. Glasgow.

(*Medical Times and Gazette*, June, 1865.)

Dr. Henderson directs attention to two new remedies for gonorrhœa.

The first of the medicines is the oil of yellow sandal wood. It is obtained by distillation from the wood of the tree Sirium myrtifolium, of the genus *Santalum*. It grows in the East Indies. One pound of the wood yields two drachms of the oil. Lindley writes : " This oil is said to be used to adulterate the oil of roses." Professor Redwood, in his supplement to the Pharmacopœia, on the authority of Dr. O'Shaughnessy, writes : " Sandal wood in powder is given by the native physicians in ardent remitting fevers. With milk it is also prescribed in gonorrhœa."

In Dr. Henderson's experiments with this drug he has found it perfectly innocuous even in large doses. From twenty to forty minims three times a-day, diluted with three parts of rectified spirit, and flavoured with ol. cassiæ or ol. cinnam., is the ordinary formula he employs; water and a confection after. In cases of the disease at the first, second, or third stage, in susceptible persons, he has often seen the most marked suppression of the discharge within forty-eight hours. It has the great advantage of being a pleasant medicine, not liable to cause sickness, agreeable to the taste, and grateful to the stomach. It is a medicine as to efficacy, in his opinion, equal, and frequently superior to bals. copaib. or cubeb pepper. Dr. Henderson often succeeded with it when both had been fairly tried and failed. Besides, it is convenient and portable: and if the patient is delicate, or in bad health, or the system disordered, the possession of a remedy which will act as a stomachic medicine and cure the disease is, he thinks, to be highly valued. He has used it in many cases during the past five years. He has no theory to offer

as to its mode of acting. His experiments have been numerous, but entirely of a practical character. The odour of the drug is slightly perceptible in the urine. Its action on the urethra is observed, in susceptible cases, within a few days after beginning its use. Almost every druggist keeps it for perfumery purposes.

The other remedy Dr. Henderson has experimented on is the gurjun or gurgina balsam, or wood oil. It is the product of the *dipterocarpus turbinatus*, an immense tree growing in different parts of India. Incisions are made and heat by fire is applied to the root. One tree yields about forty gallons in a season; distilled with water it yields thirty-five per cent. of volatile oil. Wood oil is a liquid of the consistence of olive oil, of a dark reddish colour and slight odour. Pereira gives a good account of this medicine when speaking of the adulterations of bals. copaib. In the new edition of Royle's Materia Medica, p. 319, it has the honour of occupying one line. Referring to the products of the dipterocarpæ, it is written—"There is a wood oil which contains a principle analogous to copaiba." In the other works of materia medica, it is either not mentioned or only slightly noticed. The description of this medicine which caused me to try it for myself is contained in the valuable "Manual of Practical Therapeutics," by Edward John Waring, of the East India Company's Service, first edition, 1854, pp. 200, from which I beg to make the following extract:—

"Gurjun or wood oil tree is found at Chitagong, Pegu, the Tenasserim Provinces, &c. It is found abundantly in all the bazaars of India. By distillation it yields an essential oil, which in all its medicinal properties and actions closely resembles copaiba. Dr. O'Shaughnessy employed it in numerous cases of gonorrhœa and gleet; and the results seem perfectly conclusive, that in the treatment of these and other affections of the genito-urinary system the essential oil of gurjun is nearly equal in efficacy to copaiba. It generally causes a sensation of warmth in the epigastrium, eructations, and sometimes slight purging. It greatly increases the quantity of the urine, which has a terebinthinate odour. Dr. O'Shaughnessy found that some obstinate cases of gonorrhœa and gleet, which had long resisted copaiba and cubebs, were cured by this remedy. E. J. Waring writes: 'In the few cases I have had an opportunity of trying it, the results have been uniformly satisfactory. It might be advantageously introduced into English practice as a cheap and efficient substitute for copaiba. The dose is 10 to 15 drops thrice daily.'"

It is now several years since Dr. Henderson commenced to experiment with wood oil. He has only used it in cases where copaiba had been fully tried and failed. In every case it was successful within a week. No symptoms of inconvenience in any of the cases were produced. He gave it in what may be called large doses—a teaspoonful two or three times a-day, uncombined. He has not been able to investigate its action further, as his supply became exhausted, and it is not easily procured in this country. He is thoroughly convinced it is an excellent medicine. He thinks it is probable this oil was introduced into England without there being a demand for it,

and those holding it tried to get quit of it by mixing it with copaiba. Being detected, the cry has gone against its use in that way, and very properly so, fulfilling the old saying, "Give a dog a bad name," &c. That it can be procured abundantly at a moderate price Dr. Henderson has no doubt, for at the International Exhibition, London, 1862, he observed several specimens, such as the following :—

INDIA.—CLASS IV.

Sub-class :—*Vegetable Substances used in Manufactures.*

Gurjun Oil. Chittagong.	Wood Oil. Mangalore. P. P. Coelho.	Wood Oil. Capave. Moulmain.
5702	10,750	5692.

Art. 101.—*On the Treatment of Hæmorrhoids by Ligature.*

By James R. Lane, F.R.C., Surgeon to St. Mary's and the Lock Hospital, and to St. Mark's Hospital for Diseases of the Rectum.

(*Lancet*, September, 1865.)

Mr. Lane controverts Mr. Henry Smith's statements of the greater safety of the treatment of hæmorrhoids by the latter gentleman's improved clamp than by ligature. He says :—

"My own experience of the operation with the ligature amounts now to as many as 427 cases. In the immense majority the progress towards recovery has been singularly uniform. It has been rare indeed that I have met with any untoward symptoms, or that the healing has been much delayed; and I have never seen any cause for serious alarm, except in two cases, which occurred more than seven years ago, and which have already been made public. The two cases to which I allude proved fatal from tetanus. They were lodged in the same ward, and were seized with tetanus on the same day, at a time when that complaint was epidemic in the hospitals of London to a remarkable and, I believe, almost an unprecedented, extent. Out of the whole number of 427 cases which I have treated I have never seen an instance of pyæmia, of erysipelas, or of diffuse inflammation. Mr. Gowiland, my colleague at St. Mark's Hospital, must have operated on as nearly as possible the same number, his appointment to that institution having been made at the same time as my own, and I know that his experience is almost identical with mine on this question. He has never met with a case of pyæmia, and has had no fatal result, excepting, strange to say, two cases of tetanus, which occurred within a short time of those to which I have already referred, and were fairly attributable to the influence of the same epidemic.

"Tetanus and pyæmia, as we have seen, are alleged to be 'the two most formidable results of the operation with the ligature.'

With respect to tetanus, there is no doubt it will occasionally follow this, as it will also occasionally follow every conceivable surgical proceeding. By careful search in the medical journals it would not be difficult to find cases in support of such an allegation against almost every operation in surgery, whether small or great. But I contend that there is no evidence that the ligature of hæmorrhoids has any special liability to produce this disease, and that there is no ground whatever for the statement that the inclusion of tissues in a ligature is a more probable exciting cause than the cauterization of the same tissues with the hot iron. In point of fact, burns have long been rather unfavourably known for their tendency to be followed by tetanus; therefore, in contrasting the cautery with the ligature, the inference to be drawn is certainly not to the disadvantage of the latter. The assertion that it is *not possible* for tetanus to follow the operation with the clamp and cautery is too absurd to require refutation, and equally so is the argument that an operation is exempt from an exceptional complication like this because twenty, fifty, or even a hundred cases have not furnished an example of it.

"Again, with respect to pyæmia, it is to be feared that this is an occurrence from which no surgical operation will ever be able to claim complete exemption, especially in large hospitals. But all our knowledge on the subject tends to show that it depends on the health and condition of the individual patient, and on his atmospheric and other surroundings, rather than on the nature of the operation. It will be time enough to argue against the singular theory, that a slough produced by ligature and a slough produced by cautery are materially different in their predisposing influence, when any reliable facts are adduced in its support.

"But I am in a position to assert confidently, and on positive grounds, that the operation with the ligature does *not* possess any peculiar liability to pyæmic infection. On the contrary, the reverse according to my experience has been remarkably the case, so much so that I have long been surprised at the exemption. I have the authentic testimony of 427 cases occurring in my own practice, and reliable information of about an equal number in the practice of my colleague, thus making a total of about 850, and out of this large number not a single instance of pyæmia has been observed."

Art. 102.—*On Polypoid Growths in the Rectum, and their Occasional Association with Anal Fissure.*

By James R. Lane, F.R.C.S., Surgeon to St. Mary's and the Lock Hospitals, and to St. Mark's Hospital for Diseases of the Rectum.

(*Lancet*, July, 1865.)

Mr. Lane records the following case illustrative of the connexion between polypoid growths in the rectum and anal fissure:—

Case.—Isabella B——, aged forty, needlewoman, unmarried, was admitted into St. Mark's Hospital, December 17th. She had had some

uneasiness and sense of irritation about the rectum for eighteen months, with occasional loss of a small quantity of blood with her motions. For the last six months something about the size of the tip of her finger had been occasionally protruded at stool, and had caused severe pain till it had been drawn back again, which was only effected by degrees and with great difficulty. For eight weeks, however, she had suffered pain of the most acute character during and after every action of the bowels, and independent of the protrusion alluded to, which was not constant. The pain lasted nearly the whole of the day; it compelled her to keep in bed during its continuance, and almost entirely prevented her following her occupation. The dread of it caused her to avoid passing a motion as long as she could, and the accumulation of hardened fæces thus occasioned of course greatly increased her distress. She had the anxious and haggard expression so often seen in persons suffering from fissure of the rectum—like that of a person labouring under severe organic disease; and she stated that she was "falling away" rapidly.

On examination, I found a well-marked fissure with indurated edges upon the sphincter muscle in the usual situation at the posterior part of the anus. With the finger in the rectum, a polypus, the size of a nut, was readily discovered. It was attached by an elongated narrow pedicle to the posterior part of the bowel; but it had no direct connexion with the fissure, for its pedicle was inserted nearly an inch and a half higher up. The examination was attended with severe pain from the spasmodic contraction of the sphincter muscle.

Dec. 19th.—A free incision was made through the fissure. The polypus was then drawn down by a vulsellum, and a ligature was applied at its point of attachment. It was then cut off just beyond the ligature.

The result was complete relief from all the painful symptoms. The ligature came off on the fifth day, and the wound was soundly healed at the end of three weeks, when she was discharged from the hospital cured. A very marked improvement had taken place in her general health and appearance; the anxious expression of face had disappeared, and she had gained flesh considerably. She had had no pain since the operation, except the slight smarting occasioned by the fæcal matters passing over the cut surface.

In connexion with this case Mr. Lane remarks:—

"Since my connexion with St. Mark's Hospital, I have met with as many as nineteen cases similar to the above, illustrating the combination of rectal polypus with anal fissure. In this particular instance the protrusion observed by the patient at once directed attention to the presence of some growth within the rectum; but often no protrusion is noticed, and then the real nature of the case is in greater danger of being overlooked.

"In exemplification of this, I may mention the case of a young married lady who was under my care about twelve months ago. She had suffered for many months acutely with symptoms of fissure, and during that time had miscarried, the miscarriage having been apparently brought on by the severe pain and irritation of the anus. Some weeks before I saw her she had consulted another surgeon, who had discovered a fissure, and had made a slight incision through it, at the same time removing an external pile. She was at first relieved by this operation; but as the wound healed the symptoms returned as severely as ever. When I saw her, the remains of the wound were in a highly painful and irritable condition; and

on further investigation I found a distinct polypoid growth within the rectum, attached about three-quarters of an inch higher up. The removal of this, with a repetition of the incision, this time made somewhat freely, completely cured her, and she has had no return of the symptoms. Shortly after the operation she became pregnant, and she has recently been confined at the full period.

"Such a mistake as this is very disheartening to the patient and very annoying to the surgeon. It is, however, not unlikely to happen to anyone not familiar with the management of such cases ; nor is this the only instance which has come under my notice. It is chiefly with the view to point out this source of error that I bring the subject forward, for the coexistence of the two conditions is not very unfrequent. To avoid mistake, therefore, it is well worth while always to examine the interior of the rectum carefully before operating in cases of fissure. The examination, however, must be made carefully and thoroughly, for the polypus, being very movable, is apt to recede before the finger, and may very easily be missed.

"A few years since, Mr. Baker Brown published some cases of this kind (see *The Lancet*, July 14th, 1860, p. 31,) which I read with great interest, for his observations on the subject correspond very closely with my own. I cannot, however, quite agree with him in his conclusion ' that a very large number of fissures of the rectum are produced by these little polypoid bodies,' and that ' they will be found in almost every case, if carefully sought for.' On the contrary, I am continually meeting with cases of fissure—and indeed they form the great majority—in which nothing of the kind can be discovered after the most careful search. I do, however, not unfrequently find a small excrescence or papilla of mucous membrane at the upper end of the fissure, exactly corresponding to the little inflamed flap of skin so often seen at its outer end ; but this is of a different character, and is evidently a subsequent formation—the result, and not the cause, of the local inflammatory action which has been set up. In the cases which I have noted as examples of polypus, and to which I am now alluding, I have only used the term to designate a distinctly pedunculated growth attached to the interior of the bowel, which has had no direct continuity with the fissure, but, on the contrary, has often sprung from the opposite side of the rectum. On inquiring into their history, I have usually found that there has been some irritation about this region for a considerable period, often with loss of blood ; but at a later date the acutely painful symptoms have been superadded. The earlier and milder symptoms have without doubt been caused by the polypus ; and this, by continually falling against and irritating the anus, has in course of time produced the fissure.

"I have stated that I have met with nineteen cases of polypus of the rectum combined with fissure. In addition to these I have seen fourteen cases of polypus without that complication : making thirty-three in all. Twenty-eight of these have been in adults ; five have been in children, of the ages of four, six, seven, ten, and fourteen respectively. My experience, therefore, would not corroborate the generally received opinion—originating, I believe, with Sir A.

Cooper—that the affection is more frequent in children. The polypi met with in children differ somewhat from those seen in adults. They are softer and more vascular, with a greater tendency to bleed ; they are usually attached by a very slender pedicle, which readily gives way. Those which I have seen have been about the size of a raspberry, and of very much the same appearance. I believe that some of the cases of irritation about the rectum accompanied by bleeding, observed in children, depend upon the presence of these growths ; and that a spontaneous cure not unfrequently takes place, from the accidental rupture of the pedicle, without the real nature of the case ever having been made out. None of the cases which I have seen in children have been combined with fissure.

"The polypoid growths seen in the adult are usually small. I have met with one recently as large as a walnut; but this is an exception. They are seldom larger than an average-sized nut, while the majority are smaller than this, say about the size of a horse-bean. They are firmer in texture than those seen in children, but not sufficiently so, in my opinion, to warrant the distinction which has been made between them by calling one the fibrous, and the other the soft and vascular, polypus. Indeed, they appear to me to be essentially similar in structure, both being composed of fibrous and fibro-nucleated texture continuous with the submucous areolar tissue, with a copious admixture of bloodvessels, and a covering of mucous membrane. Their point of attachment is usually from an inch to an inch and a half within the anus. I have met with none higher than two inches.

"The symptoms which they occasion are slight. They consist of irritation and uneasiness about the rectum rather than actual pain, with frequent desire to evacuate, and occasional loss of blood. If protruded through the anus, they are apt to inflame and become more painful, and when down they may occasion great irritation and spasm of the sphincter. In many cases they are not protruded at all, the length of the pedicle not admitting of it; but whether they protrude or not, they may irritate the sensitive region of the anal aperture sufficiently to cause a fissure. This, indeed, seems to be their very common result, for it has been present in nineteen out of thirty-three cases which I have treated. I have twice seen them give rise to abscess and fistula, and once to procidentia of the rectum ; the procidentia, however, was cured by the removal of the polypus.

"Of the cause of these growths I have no *satisfactory* explanation to offer. They appear to be of quite circumscribed local origin, and unconnected with any general hæmorrhoidal development ; on the contrary, the mucous membrane around seems usually to be in an otherwise healthy condition.

"The only satisfactory treatment is the application of a ligature to the pedicle. Should a fissure be present, it must of course be treated by incision at the same time; and should there be a fistula, it must of course be laid open. I have never seen a case of this affection in which a cure was not effectually accomplished by the ligature of the polypus, nor have I ever seen any unpleasant result

follow its application. It is not safe, even when they are of small size, to remove them by excision. In one case, some years ago, where I did so, thinking the little tumour too insignificant to deserve a ligature, hæmorrhage to a most serious extent supervened a few hours afterwards, which was only arrested with great difficulty, and by the application of the actual cautery to the wounded spot."

Art. 103.—*On the Nature of the Mucous Tubercles about the Anus and Pudendum in Prostitutes.*

By Dr. G. B. Soresina.

(*Gazz. Lomb.*, 52, 1864 ; *Schmidt's Jahrbücher*, vol. cxxvi.)

Professor Thiry, of Brussels, has lately contended against the prevailing belief, that mucous tubercles are one of the earliest forms of secondary syphilis, and maintains: 1, that they are simply consequences of uncleanliness and abuse of coition, and only require local treatment; 2, that they are not virulent or infecting unless ulcers coexist with them ; 3, that they are only followed by constitutional syphilis, when they are the seat of ulcers that become indurated. Dr. Soresina has investigated the truth of these statements by the careful and long-continued observations of twenty-five cases, in most of which the tubercles were only treated by frequent and thorough washing with water, and when ulcerated, by touching them with nitrate of silver. He arrives at the conclusion, that the tubercles are not usually, or in their essential nature, syphilitic, but that they may become so by self-inoculation when they coexist with an infecting chancre. His cases seem to establish these positions.

(c) concerning the upper extremity.

Art. 104.—*Three Successful Consecutive Cases of Resection of the Shoulder-Joint.*

By Henry F. Lyster, A.M., M.D., Detroit, Mich., formerly Surgeon of the 5th Michigan Vet. Vols.

(*American Journal of the Medical Sciences*, October, 1865.)

The following cases are recorded by Dr. Lyster :—

Case 1.—Private R. C. H., of Co. I. 57th Penn. Vols., 3rd Div. 2nd Corps (residence at Sandy Lake, Mercer Co., Penn.), sustained a compound comminuted fracture of the head of the humerus (left), from a minié ball at the battle of the Wilderness, Va., May 5, 1864. The ball came from the " left flank," and struck the shoulder on its outer aspect at a right angle with its anterior face, and in nearly a horizontal direction. It passed

through the deltoid, just below the acromion process, and penetrated to the centre of the head of the humerus, producing a fracture radiating in every direction. The ball, greatly to my surprise, could not be found in the bone, and must have rebounded partially and have fallen out when the clothing was removed. The fracture did not extend below the surgical neck of the humerus. The patient was put under the influence of chloroform, when I proceeded to operate, being skilfully assisted by my operating staff, Surgeons Jones, 63rd Penn. Vols., Thompson, 124th N. Y. Vols., and Brennan, 1st N. S. S. S.

An incision four and one-half inches in length was made through the integument and subtegumentary fasciæ, from the acromion process down the outer aspect of the arm, preserving the general direction of the humerus and of the fibres of the deltoid. The coarse muscular fibres of the deltoid were next separated down to the humerus in the same direction, with the handle of the scalpel and the forefinger of the left hand, assisted here and there by the edge and point of the scalpel. The muscular attachments were separated from the tuberosities and their vicinity ; the capsular ligament divided ; and the head and tuberosities of the humerus removed by a chain-saw applied below the surgical neck. Care was taken to prevent hæmorrhage or injury to the neighbouring tissues during the operation. One suture was introduced at about the middle of the incision to promote primary adhesion of the lower portion of the wound. The patient seemed to have experienced no shock from the operation, and was able to walk from the table and to take some care of himself. He was sent to general hospital after having borne the trial and dangers of the field hospital at that place— the ambulance transportation over the worst fourteen miles of Virginia muddy road it has ever been my fortune to encounter with a train of wounded, and the crowded and unhealthy hospitals at Fredericksburg, Va. His wound, he writes me, did not heal until the beginning of September ; but his general health had not suffered materially from his wound ; and he was able to attend a commercial college during the whole of last winter. He wrote me in February that his " arm and hand were of great use to him ;" and " at that time he could bear twenty-five pounds weight in his hand without hurting his shoulder." His " arm is steadily improving in strength and usefulness."

Case 2.—Private M. D., of Co. A, 5th Michigan Vet. Vols. 3rd Div. 2nd A. Corps (residence at Holland, Mich.), was wounded at one of the engagements in front of Petersburg, Va., June 17, 1864, sustaining a compound comminuted fracture of the head of the right humerus. A minié ball struck the front of the shoulder and penetrated the head of the humerus, producing a radiating fracture extending down into the shaft of the humerus about one inch below the surgical neck. The soft parts were somewhat lacerated by the fragments, as the range was short ; still no important vessel or nerve was injured. The operation was proceeded with in the same manner as in the preceding case. The incision was perhaps a trifle longer, and one or two small vessels were ligated. This patient was sent almost immediately to the base hospital at City Point, Va., and was after a few days sent to the General Hospital in Washington, D. C. He had a secondary hæmorrhage early in July while in the hospital, and lost a good deal of blood ; fortunately this accident did not recur. His general health has been good, although the wound did not heal up entirely until April. He says under that date, " I can do my own writing, and can lift twenty-five pounds quite easily. I can raise my right hand to touch my chin and feed myself, and leave no pain in my shoulder. I would not have it off for anything in the world."

Case 3.—Corporal W. H., Co. K, 120th N. Y. Vols. (residence in Delancy St., N. Y. city), sustained a compound comminuted fracture of the head of the right humerus from a minié ball received in action in front of Petersburg, Va., July 30, 1864, the day of the explosion of the mine under the rebel fort. The ball struck from the front—though I do not remember that it was found in the wound. The head, and tuberosities, and surgical neck of the humerus were badly fractured, and a slight hæmorrhage from one of the circumflex arteries oozed out of the mouth of the wound.

The examination under chloroform having determined the condition of affairs, I proceeded as in the former cases, with the additional assistance of Surgeon Van Steinberg, 120th N. Y. Vols.

The incision was made more towards the front than in the two cases previously mentioned, and was about five inches long, and slightly convex anteriorly, so as to involve the wound of entrance in the incision. Great care was observed, owing to the bone being approached from a position nearer the axillary vessels and nerves.

The cicatrix was formed by an abscess having pointed and been opened at that place during the healing process.

Owing to the necrosis of a small ring of the upper end of the shaft of the humerus, which was removed in April, the wound had not entirely healed. In May, when I last heard from him, it was almost entirely healed, and the impression was that it would be quite well in a couple of weeks.

His general appearance would indicate that his constitution had not felt the drain upon it to any appreciable extent. In regard to the use he has of his arm and hand, at this comparatively early period, he wrote to me in May as follows:—"I think it is worth more than all the artificial limbs ever made. I can write quite easily on a low table, with the paper a little closer to the body than is common. I can cut my meat with it, and if I exert myself, can raise my food to my mouth with that hand. I can lift a child two years old quite easily, one four years old with difficulty. When walking I can, with a little exertion, give my arm the proper swing and stiffness. I can straighten it quite easily ; and the sensation is as good in one hand as in the other. The arm is gradually improving, and I hope will be very useful."

" These three cases," Dr. Lyster remarks, "were operated upon within a few hours after the injury had been sustained, and were all of a class where the necessity of active surgical inteference is universally admitted. The only questions that arose were, Shall we amputate at the shoulder? or shall we resect the head and neck of the humerus? These questions cannot always be easily decided, and I have no doubt that arms have been sacrificed which could have been saved, and would have been, had the surgeons considered the operation for resecting as affording an equal chance for the patient's recovery. So far as my experience teaches me, though I have rarely seen the operation performed in the hospitals or in the field, the results of the only cases in which I have ever performed the operation have all been so favourable that they would seem to warrant the resection whenever the nature of the injury will allow, especially in recent gunshot wounds. In many instances the extent of fracture down the shaft of the humerus, the laceration of the muscular tissue, or the injury of the axillary vessels or axillary plexus of nerves, or, judging from the track of the ball, the anticipated sloughing of the brachial artery, will necessitate amputa-

tion at the shoulder without delay or hesitation. This is also very generally the case in shell wounds, owing to the extensive laceration or to the internal destruction of all the tissues of that region, even when the skin remains almost entire. A case of this latter nature I remember meeting in one of the battles in front of Petersburg, Va., which abundantly justified an amputation at the shoulder, when the only apparent wounds were made by two sharp spiculæ from the humerus protruding through the skin on the outer aspect of the arm, below the shoulder, making incisions not more than three or four lines in length.

"The simple manner in which the operation for resection of the shoulder may be performed by the single straight incision, with the slight amount of injury to the soft tissues—rarely more than two small vessels, if any at all, requiring the ligature—and yet the grand results which are obtained for the patient in the preservation of his arm and hand should, in my opinion, be made to weigh in the balance, when the chances for and against are at all evenly divided. In the cases already detailed it will be seen that the arms are all of much use, and in none of them is there any pain. If these men can use them so much as they say they do at the end of the first eight or ten months after the operation, of how much more value will they be to them when nature has firmly knit the wounds and healed and strengthened the injured parts, and habit, and custom, and exercise have taught them the manner in which they can be used to their greatest advantage !"

Art. 105.—*Aneurism of the Brachial Artery occurring after Amputation.*

By G. W. Smith, M.D., of Plainfield, Pa.

Case.—John Finlay, private, Co. E. 3rd Massachusetts Artillery. Admitted to White Hall Hospital, August 24th, 1865. This man's right arm had been amputated, August 19th, very close to the elbow joint, in consequence of a severe injury of the right forearm, the result of the premature explosion of a shell fired from his own gun. The form of the operation was the anterior and posterior flap. On admission, the man's general health was *very* much better than could have been expected under existing circumstances ; he ate well, slept well, and suffered but little pain ; his bowels were regular, tongue clean, skin healthy, pulse 78 and of good volume. These happy indications are severally alluded to, because it is thought their existence is somewhat remarkable in conjunction with a stump five days after amputation, the condition of which is decidedly unhealthy, not only at the point of operation, where the flaps are pale, flabby, and by their appearance would seem to indicate a decided lack of constitutional vitality, but throughout its whole extent, being severely and deeply burned. The left arm, shoulder, and breast were also badly burned. The treatment consisted of nutritious food, and porter, with a local application of warm

water ; as a stimulant, an occasional touching of the wound with acid. nitric. ℈j. to aq. ℥j. was resorted to.

On the night of August 27th secondary hæmorrhage occurred, of an alarming character ; the bleeding was finally arrested by pressure, after at least twenty-five ounces of blood had been lost. From this time until August 31st the patient did comparatively well ; on the morning of this day the hæmorrhage recurred, and a board of medical officers was called to see the patient in consultation. At this time the burned arm was in a very unpromising condition, for although not actually sloughing, there was every indication that such an event would soon recur. It was also discovered that the circulation in the part, from some cause, was abnormal. After careful examination, an opinion was formed that an aneurism of the brachial artery existed. The unhealthy condition of the burned stump, it was thought, promised badly for the success of ligation, and it was decided to reamputate. The circular operation was performed near the shoulder-joint. Very little hæmorrhage occurred. Anæsthetic used, chloroform one pint, ether four pints.

An examination of the removed part showed a well-formed aneurism of the brachial artery, existing about two and a half inches above the point of the application of the ligature. The two *inner* coats of the artery were *intact,* and *formed the walls of the aneurismal tumour.* The external coat was deficient, a small portion of its circumference having been shaved off by the knife of the operator in cutting the anterior flap at the first amputa- tion. Through this opening, or ring, the aneurismal tumour protruded, reminding one of the protrusion of a femoral hernia through its ring. The edges of the *ring* were bold and well defined, and the tumour itself con- sisted of a well-marked neck and body ; that portion of it within the cir- cumference of the ring being constricted to the diameter of one-eighth of an inch, the protruded part, or body, measuring at least half an inch in diameter. It was discovered that the hæmorrhage proceeded from a rupture in the walls of the aneurism.

The secondary amputation did very well, and the patient was transferred to his own State, October 29th, with a stump entirely cicatrized.

" In this case," Dr. Smith observes, "there are two points of interest presented to the surgeon. The first is, that the knife of the operator, in performing the flap operation, may so wound an artery as not to be perceptible at the time, and yet give rise to very serious secondary results. Again, it proves that the walls of an aneurism are not always formed by the *external* coat of an artery ; neither are they always formed by the dilatation of all the coats, or by cellular tissue ; but may be formed by the dilatation of the *internal* tunics, the outer one being, from some cause, injured. In the case above delineated, the external coat was certainly injured by the knife. At first it was thought that it might be the result of a direct injury to the vessel at the time of the explosion of the shell ; but the healthy condition of all the coats, as well as the smooth *cut* edges of the wound in the fibrous tunic, precluded the latter sup- position."

(D) CONCERNING THE INFERIOR EXTREMITY.

ART. 106.—*On Amputation of the Leg.*

By MR. FERGUSSON, F.R.C.S., F.R.S., Surgeon-Extraordinary
to the Queen.

(*Lancet*, July, 1865.)

The following remarks on this subject occur in Mr. Fergusson's
lectures on the Progress of Surgery in the present century, delivered
at the Royal College of Surgeons :—

" As may have already been remarked, I do not attach so much
importance to the question of flap or circular as many do ; and
whilst giving the preference, as a general practice, to the mixed
manner, I believe that with a well-performed operation in any of
these ways, or with any zigzag which circumstances or the sur-
geon's fancy may dictate, a stump can be produced which shall defy
adverse criticism ; while by any of these methods, badly executed,
any or all of the evils pertaining to bad stumps may be the result.

" In my younger days, the grand effort of all operators, whatever
the kind of operation, was to have an abundance, or I might say a
superabundance, of soft material to cover the end of the bone, and
make what was called a fleshy stump. The bugbear in those days
seemed to be the risk of scantiness in this respect, and hence every
substance was looked to which might afford the needful amount of
soft materials. Every now and then it was evident that mistakes
were made in this direction : a greater length of soft parts was left
than was needful ; and occasionally, when the length seemed perfect,
the flap was actually too thick to bend readily and properly up
against the end of the bone or bones. This was often seen particu-
larly marked in the flap operation in the leg, a little below the knee
—a proceeding at that period mostly in fashion. If the operation
were done for an accident—for example, on an athletic navvy—a flap
being formed by transfixion from the muscular calf often proved a
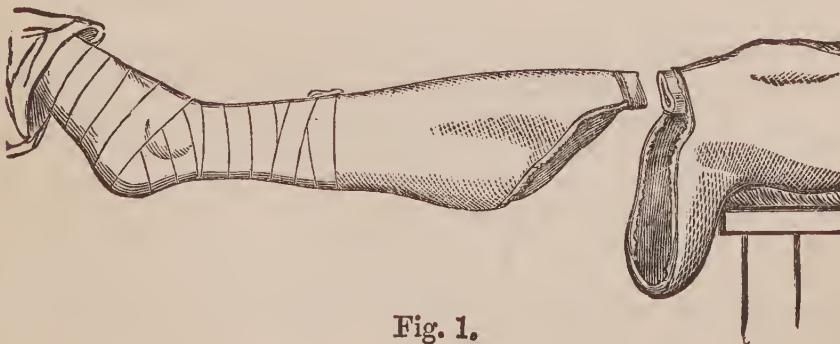
Fig. 1.

troublesome one to treat (fig. 1). The skin by this method of ope-
ration, although in reality cut lower down than the muscles, retracted

more; and although that retraction was seemingly overcome in the dressing, as stitches were applied, the subsequent swelling of the muscles often burst the superficial union, and, shooting between the margins of skin, presented for weeks or months a large granulating sore, which healed but slowly, much to the distress of the patient and vexation of the surgeon. I remember well that Mr. Liston was so much annoyed in this way that he latterly made the posterior flap in such an operation much thinner than on former occasions; and I can speak freely of my own experience in the same operation. It is long indeed since I came to the conclusion that it was unwise to leave a thick muscular flap. Part of the fault in such cases arose, I believe, in the almost uniform practice of transfixing and cutting outwards. I am by no means convinced that this is invariably the best method of performing the flap operation, and I feel assured that cutting from without inwards is in many instances followed by the best results. But I may say that I have seen the two extremes with regard to the substance of flaps, for in later years some of our ablest surgeons have advocated the practice of carefully excluding all material but skin, cellular tissue, and fat. We are greatly indebted to the surgeons of the Worcester Infirmary, Messrs. Carden, Shepherd, Budd, and Walsh, for our knowledge of upwards of sixty such cases, wherein the practice has given much satisfaction.

"It would be well in all discussions about stumps to state the age of each. It is not easy to say when a stump is at perfection. My own idea is, that that is when it is least tender, and can bear the greatest reasonable pressure. Many months, sometimes years, elapse before this condition is most marked. In many or most instances it looks best when some two or three months' old; but look or appearance is not perfection in a stump: its utility, its callousness, I may say, are its better attributes, and these cannot be developed for many, many months after operation. It is a common thing for surgeons to speak of an excellent stump some three, four, or six weeks old. True, one that promises well at that date may, and indeed is likely to, turn out well in the long run; but many unfortunate things may befall after this, and I think it best to look to its condition some years afterwards, for it is then that utility is tested, and this character must ever take precedence of plumpness or beauty, as we fondly call it.

"I am not aware of much change in recent times upon the circular method, and am inclined to think that, upon the whole, those who follow it are thoroughly content. But amongst the flap-men considerable changes besides those above referred to have been tried. One flap has occasionally been made instead of two, or two instead of one; and instead of looking to one place or side of the limb, the flap has been made from any most suitable. Thus one long flap has been taken in thigh, leg, and forearm, and two have been occasionally taken in the leg, one in front and one behind, or one on the outside and another on the inside, as I have seen. Yet, if we except the proposals of Mr. Teale, there has been considerable unanimity. The old single flap from the calf of the leg, the lateral flaps in the thigh, the lateral (as they may be called) in the arm and forearm,

may be considered as having been the standards of the kind for the last forty years.

"Some interesting exceptions to this practice may, however, be referred to. I well remember when, in amputation in the thigh, the only supposed legitimate method was to reserve a flap from each side. If the knife in piercing did not seem as if it had passed straight from front to back, or, looking to the patient being recumbent, from above directly downwards, having about the same thickness of material on each side, it was doubted if the operation had been correctly performed. Yet I have subsequently seen all sides of the thigh reserved as opposites; in particular, that pains have been taken to make the flaps actually in front and behind. And, if I am not mistaken, this has been the favourite flap operation in the thigh for the last twenty years and more. Yet its reputation is, I fancy, on the wane; and there is a rising feeling to preserve a long anterior and short posterior flap, in accordance with certain views of Mr. Teale and Mr. Carden, both because of anxiety to keep the cicatrix at the back or lower part of the stump, as also to facilitate the escape of serum and matter whilst the patient lies on his back. In former days the aim was to have the cicatrix fairly in the middle of the stump; but in recent times the desire seems to be to have it on one side or other. I cannot but say that I look most favourably on this latter plan. As a rule, the original tissues are better than a cicatrix; and some interesting examples of this have been developed in modern times, of which I shall take special notice in a few minutes.

"Some of these recent views I attribute largely to the proposals of Mr. Teale, of Leeds, who, in this as in other respects, has contributed so much to the established reputation of that school of British surgery. In a series of examples he has endeavoured to show the advantages of long flaps from one side of a limb, wherewith to cover the ends of bones, and short flaps in which the main vessels and nerves are preserved, as exemplified in these sketches, copied from his work on the subject. Fig. 2 shows the lines of incision for am-
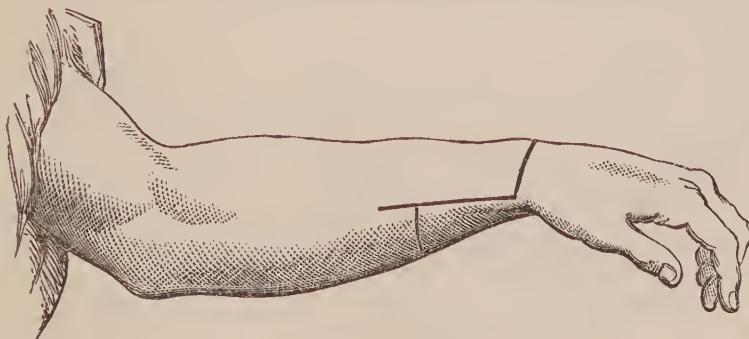
Fig. 2.

putation in the forearm; fig. 3 those in the leg; and fig. 4 those in the thigh.

"It might be thought that a good thing in surgery having been secured, there would be no desire for change. But there will, I suppose, always be difference of opinion as to what really is the good

thing; and I am led to make this remark by the views expressed by
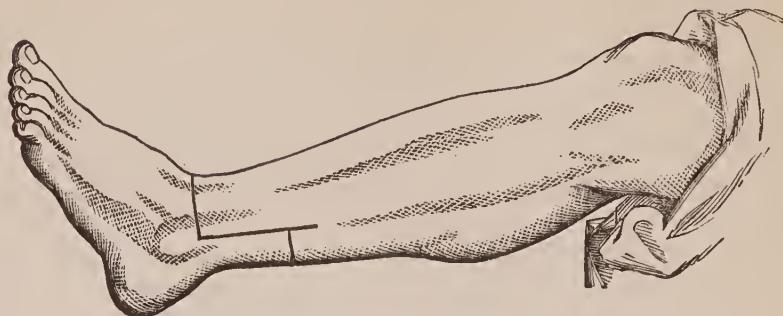
Fig. 3.

the latest author on amputation, Mr. Henry Lee, of St. George's
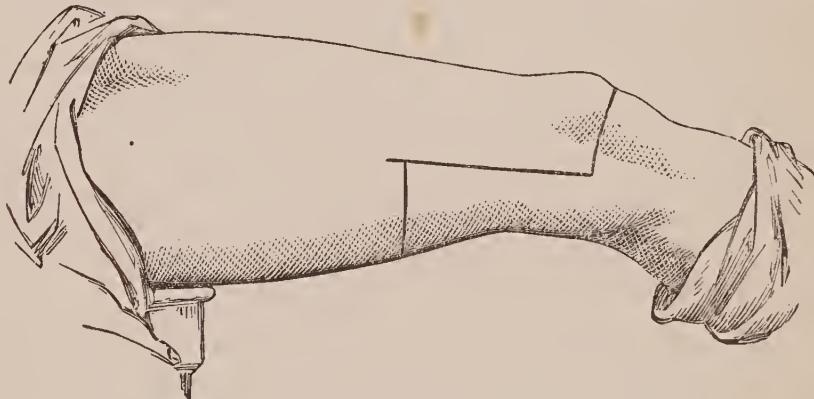
Fig. 4.

Hospital, who only a few nights ago read at the Medical and Chirur-
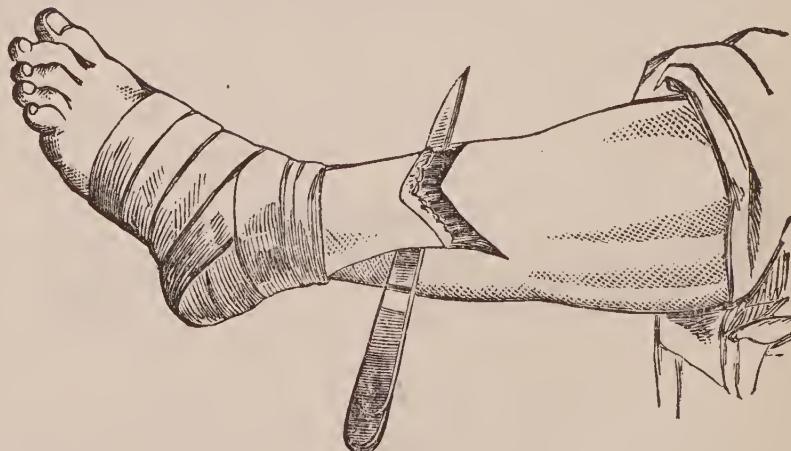
Fig. 5.

gical Society a paper expressive of the advantages of a long flap from the back of the leg, a short one from the front; the two ope-

rations being identically the same, excepting that the flaps are from reverse sides. Each author insists on the wisdom of so dividing the main vessels and nerves that they shall not be exposed to after-pressure, and each making a feature of the angles at the ends of the flaps, in contradistinction to the semicircles or ovals of the ordinary flaps, such as represented in fig. 1, or in fig. 5, which shows an amputation by transfixing lower down the leg. One cannot but perceive novelty in Mr. Teale's flaps—being taken generally from the least muscular side of a limb; but in Mr. Lee's we may recognise old friends, with the features rendered somewhat angular."

ART. 107.—*On Amputation of the Leg by a Long and Short Rectangular Flap.*

By Mr. HENRY LEE, F.R.C.S., Surgeon and Lecturer on Pathology, St. George's Hospital.

(*Medical Times and Gazette*, June, 1865.)

In a paper read before the Royal Medical and Chirurgical Society, Mr. Lee called attention to Mr. Hey's mode of operating by means of a long flap from the back of the leg, and to Mr. Teale's plan by a long rectangular flap from the front. The advantages of both these plans might be combined by making a rectangular flap from the back instead of from the front of the leg; a thick soft cushion might thus be provided for the ends of the bones, and no large nerve need be left in the flap. The operation described was performed according to Mr. Teale's plan as far as the external incisions were concerned, but the long flap was made from the back instead of from the front of the limb. Two parallel incisions were made along the sides of the leg; these were met by a third transverse incision behind, which joined the lower extremities of the first two. These incisions, which formed the three sides of a square, extended through the skin and cellular tissue only. A fourth incision was made transversely through the skin in front of the leg, so as to form a flap in this situation, one-fourth only of the length of the posterior flap. When the skin had somewhat retracted by its natural elasticity, an incision was made through the parts situated in front of the bones, which were reflected upward to a level with the upper extremities of the first longitudinal incisions. The deeper structures at the back of the leg were then freely divided in the situation of the lower transverse incision. The conjoined gastrocnemius and soleus muscles were separated from the subjacent parts, and reflected as high as the anterior flap. This part of the operation was performed with the greatest facility on account of the loose attachments of these muscles, especially at the lower parts of the leg. The deeper layer of muscles, together with the large vessels and nerves, were divided as high as the incisions would permit, and the bones sawn through in the usual way. The flaps were then adjusted in the

manner recommended by Mr. Teale. The long flap thus formed was much thicker than when taken from the front of the leg. It was consequently less liable to slough. It afforded a much more efficient protection to the ends of the bones, and a thicker and softer pad upon which to rest a part of the weight of the body when an artificial limb was applied. Three cases were detailed in which this mode of operating had been adopted, and drawings given of the stumps after they had healed. Two other cases were mentioned. In one of these, which was performed after great loss of blood from ulceration of the anterior tibial artery, in a case of very severe compound fracture, the patient died. In the other case the patient made a rapid and good recovery. These were, the author believed, all the instances in which this particular operation had been performed.

ART. 108.—*Digital Compression of an Aneurism of the Popliteal Artery.*

By M. DEMARQUAY.

M. Demarquay presented to the *Société de Chirurgie* a patient to whom he had applied with success digital compression, for an aneurism of the popliteal artery. The man, a coachman by profession, entered hospital the 8th of May, suffering a great deal of pain and inconvenience from a pulsating tumour in the popliteal space. The pulsation was well marked, and was accompanied by the peculiar bruit so characteristic of aneurismal tumours. The affected limb was very considerably warmer than the other. The character of the tumour being recognised, M. Demarquay determined to treat it by digital compression. All the pupils of the hospital were taken into service, and one of them devised a little apparatus, a sort of cap filled with lead, by means of which the compression could be more effectually applied. It was continued from ten o'clock in the morning till twelve at night. By five o'clock that evening all pulsation had ceased. At twelve the patient was left to himself. Eight days afterwards he was attacked with bronchitis, but recovered. The aneurism was cured, but remained as a small enlargement without pulsation.

PART III.—MIDWIFERY.

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

(A) CONCERNING PREGNANCY AND PARTURITION.

ART. 109.—*On the Mortality of Childbed as Affected by the Number of the Labour.*

By J. MATTHEWS DUNCAN, M.D., F.R.S.E., Lecturer on Midwifery, &c.

(*Edinburgh Medical Journal,* September, 1865.)

FROM a careful examination of this subject, Dr. Duncan arrives at the following laws :—

" 1. The mortality of first labours is about twice the mortality of all subsequent labours taken together.

" 2. The mortality from puerperal fever following first labours is about twice the mortality from puerperal fever following all subsequent labours taken together.

" 3. As the number of a woman's labour increases above nine, the risk of death following labour increases with the number.

" 4. As the number of a woman's labour increases above nine, the risk of death from puerperal fever following labour increases with the number.

" 5. If a woman has a large family she escapes extraordinary risk in surviving her first labour, to come again into extraordinary and increasing risk as she bears her ninth and subsequent children.

" These laws," Dr. Duncan remarks, " although they merely state coincidence, have very important practical bearings, which are too self-evident to require description. They have also important philosophical bearings, which were alluded to in the commencement of this article. The most important, perhaps, of these relate to puerperal fever. These also I shall not enter farther upon than to say, that the attendance of puerperal fever specially on primiparæ, and women who have borne large families—its pretty close correspondence in relative amount to the general mortality of parturition after different pregnancies—its subjection also to the law of the duration of labour—do not appear to me to lend support to the

views hitherto generally entertained regarding it, and 'expressed in the words accidental fever, contagious, epidemic. Another point under this head I shall merely mention. Authors, comparing the mortality of lying-in institutions, whether from puerperal fever or from other causes, are frequently found neglecting to begin by ascertaining whether or not they are fit objects of comparison, and under this head, *inter alia*, neglecting to ascertain the comparative amount of primarity in each institution. It is plain that, unless there be nearly the same comparative amount of primarity in the institutions, their respective gross mortalities cannot be justly compared with one another.

" The well-known protraction of labour in primiparæ may to some appear a sufficient cause of the increased mortality of first child-bearing. But mere prolongation of labour for a few hours cannot, in my opinion, be regarded as any satisfactory explanation of the causation of this increased mortality. In one set of Johnson and Sinclair's cases, the labours of primiparæ are called purely natural, and they are compared with similar purely natural cases in multiparæ ; and the mere addition of a few hours to the length of labour in such primiparæ is not a sufficient cause of their mortality being twice as great as that of similar multiparæ. Denman alludes to ' a vulgar and pernicious error which makes no distinction between the slowness and the danger of a labour.' It would be to fall into this error to explain the increase of mortality merely by increased length of labour.

" It must be held as proved, that according as labour increases in length, so the mortality accompanying it increases; and this is true not only of the whole mortality, but also of the special mortality from puerperal fever. This law, although it must have weighty bearings on the mortality of primiparæ with their long labours, cannot be regarded as to any great degree throwing light on it; for we find new increments of mortality after the ninth labour, when we have no reason to believe that labour is more prolonged than in labours preceding the ninth, and in which the mortality is less. In other words, we have the number of the labour denoting increase of mortality where there is no evidence of accompanying increase of its duration. The law of duration, then, does not enable us to explain the variations of mortality in different labours.

" To completely exclude the influence of the law of duration would be very desirable ; but we see no present prospect of doing this, except by processes of reasoning. Without such, it could only be done by comparing a series of labours of different number, but in all of which the duration was the same.

" It must be remarked that, while the law of duration certainly has important bearings on the data and arguments herein adduced to show the influence of the number of the labour, and while the extent of these bearings is undecided, it is at the same time equally sure that the law of the number of the pregnancy has important bearings on the data and arguments adduced to show the influence of the duration of labour, and the extent of these bearings is unde-

cided. The mutual influence of the data and arguments in these demonstrations must be great, and it remains for future observers to accumulate materials for either showing the amount of these influences or for a separate demonstration of the laws by data which do not intermingle them in their conditions.

" It is worth while to remark, that, restricting for a moment our regard to the great mortality of primiparæ as it exceeds that of multiparæ, taken together, we have a set of cases—those of John-ston and Sinclair—where the deaths were from puerperal fever, and in which the average increase of duration of labour in primiparæ above that observed in multiparæ was four hours. In multiparæ the average duration was eight hours ; in primiparæ twelve hours. Looking at this increased duration, and the corresponding increased mortality in primiparæ, with the light thrown on it by tables pub-lished by various authors to demonstrate the law of duration, it appears to me that the increase of mortality in primiparæ is greater than these tables appear to give as the increase corresponding to a rise in duration from an eight hours' labour to a twelve hours' labour.

" These various remarks I have made with a view to keeping the demonstration of the influence of the number of labour on childbed mortality in its proper light, to keep it separate from other laws or supposed laws with which it may be confused. I have alluded, with this view, to the causation of the variations of mortality according to the number of the pregnancy. It is no main part of this paper to enter on this subject, but a few words may not be out of place. It would be foolish to imagine that any injurious influence or the reverse could spring from the mere number of pregnancy. A woman in a first may and often does have as fortunate a delivery as in any other. To ascribe to the number of pregnancy any potency would be to fall into the error of those students of the duration of labour who ascribe great potency to the mere addition of length to a labour. In the case of the law demonstrated in this paper, and in the case also of the law of the duration of labour, it appears to me that the causation of the variations of mortality is to be looked for in the introduction of complications. I here use the word complica-tions in a much wider sense than is generally ascribed to it, wishing it to imply injuries or injurious tendencies far slighter than those ordinarily classed as complications of labour. I have no doubt that all of these, however minute or slight, have their weight in giving proclivity to a fatal termination of the childbed. Puerperal fever may have its root in an otherwise insignificant perineal laceration as well as in a phlebitis or endometritis.

" In primiparæ, as labour goes on, complications occur which are not nearly so liable to attack a woman in her next subsequent labours. These have their origin in various sources, chiefly in mechanical difficulties, and these often so slight as not to take the case from the category of purely natural, in an arrangement where the labour is alone taken into consideration, to the exclusion of the childbed.

" Multiparæ are specially and increasingly liable to complications

of a different kind connected with constitutional diseases, and with local infirmities of the uterus.

" This introduction of complications forms also the main explanation of the law of the duration of labour. Indeed, in a rough way, it may be held that the statement of duration is a statement of the increase of complications ; for it is known that, as labour lengthens out, so complications increase in frequency. Without these complications duration would be of small importance, as the profession has generally held. Their introduction is present evil and the seed of future disasters. Tables have been framed to show the increasing introduction of complications as labour is prolonged, but I only refer to them. They are quite insufficient, so far as I know them, because they are founded only on an enumeration of those of the graver sort. Further, the introduction of complications is not ruled exclusively by the duration of labour. Many are rather connected with precipitate parturition. The complications which probably contribute largely to produce the increased fatality of labours after the ninth are not all included, or capable of inclusion, in any statement of duration, being present before and after the process."

Art. 110.—*On the Mortality of Childbed as Affected by the Age of the Mother.*

By J. Matthews Duncan, M.D., F.R.S.E., Lecturer on Midwifery, &c.

(*Edinburgh Medical Journal*, October, 1864.)

Dr. Duncan has arrived at the following conclusions on this subject :—

1st. Youthfulness has less influence in producing mortality from parturition than elderliness.

2nd. From the earliest age of child-bearing there is a climax of diminishing puerperal mortality, succeeded by an anti-climax of puerperal mortality increasing till the end of child-bearing life.

3rd. The age of least mortality is near twenty-five years, and on either side of this age mortality gradually increases with the diminution or increase of age.

4th. Above twenty-five years puerperal mortality increases at a much higher rate than it increases at corresponding periods below twenty-five years.

5th. Though it is not deducible from anything in this paper, it is too interesting to omit noticing that the age of greatest safety in parturition coincides with the age of greatest fecundity, and that during the whole of child-bearing life, safety in parturition appears to be directly as fecundity, and *vice versa*.

Art. 111.—*On Thrombotic Puerperal Fever.*

By Robert Barnes, M.D. Lond., Fellow and Examiner in
Midwifery, Royal College of Physicians; Obstetric Phy-
sician, and Lecturer on Midwifery and the Diseases of
Women and Children, St. Thomas's Hospital, &c.

(*Lancet*, September, 1865.)

There is a condition of the blood, resulting partly from pregnancy
and partly from puerpery, of which the chief feature is excess of fibrin.
The blood when in this condition shows a remarkable tendency to
coagulate in the vessels. The occurrence of what is called " phleg-
masia dolens" is due to this condition. The febrile states associated
with it Dr. Barnes proposes to call "Thrombotic puerperal fever."
In their simple essence these are very distinct from the leading types
of childbed fever; and frequently—perhaps more frequently than
most other forms—the thrombotic variety occurs without any pro-
minent complication; it therefore admits of clear definition. The
foundation is undoubtedly laid during pregnancy. Perhaps it is,
after all, only a sub-variety of the "excretory puerperal fever."
Regarding the fibrin, after Mr. Simon, as an excrement, we must
conclude that hyperinosis is the result of failure of the excretory
apparatus. Now when there is excess of fibrin, there exists a pro-
clivity to separation of it from the blood-stream. It is liable to be
caught and deposited on any points where the general smoothness
of the lining membrane of the vessels is broken: for example, on
the valves of the heart. It is also subject to clot spontaneously
wherever the blood-channel is unusually tortuous, where gravitation
has to be overcome, where the vessels are exposed to compression,
and the stream is consequently slow. Acute rheumatism—a disease
which presents many instructive points of comparison with puerperal
fever—is especially prone to precipitate fibrin upon the left cardiac
valves. This is a form of *arterial thrombosis.* Probably the
presence of a second morbid material is necessary to cause the
fibrinous precipitation. The lactic acid of rheumatic blood may
favour this process. In the great majority of puerperal cases the
thrombosis is *venous.* And although clotting not seldom takes place
apart from the obvious action of a second morbid material, in many
cases it is highly probable that such a cause comes into operation.
For example: a woman may be going on smoothly up to ten or
twelve days after labour, when some untoward accident suddenly
disturbs the precarious calm—exposure to a draught, a severe
mental shock or emotion, checks excretion, and a morbid material
is thrown back into the blood. Within twelve hours of that acci-
dent pain is felt in the groin or calf, the pulse quickens, the skin is
hot and dry, and the leg begins to swell. There is venous throm-
bosis. It is fortunate, indeed, that puerperal thrombosis is almost
always venous, and so rarely arterial. The latter is, Dr. Barnes
believes, mostly fatal; the former generally ends in recovery. Why

is it that arterial thrombosis is rare, and venous frequent? The explanation appears to Dr. Barnes to be this:—A certain degree of retardation of the blood-stream offers the most favourable condition for that reaction which determines the precipitation of fibrin in the living vessels. Now the arterial blood not only moves more quickly, but it is not liable to local interruptions as is the blood in the veins; and it is also purer. Still the blood will sometimes coagulate in the arteries of the upper and lower extremities and of the brain. When it does so there is little time for the opening-up of collateral thoroughfares; the danger of gangrene or of paralysis and death is imminent.

More frequent than the thrombosis of arterial blood is thrombosis of the venous blood carried into the pulmonary arteries. As Virchow has shown, this is frequently capillary. It may even in some cases start from embolism—that is, from plugging of the pulmonic capillaries or smaller vessels by minute fragments of clot brought from a distance.

Whatsoever its origin, it is a very formidable affection. It explains a large proportion of the cases of sudden death that occur during the latter months of pregnancy, at the time of labour, and in childbed.

Less unfortunate is it when the obstruction takes place in the veins of the limbs. In this case no vital organ is concerned; there is generally time for secondary branches to dilate, and to compensate to a great extent for the incapacity of the trunks. The great majority of cases of phlegmasia dolens recover. The fact is, that although the blood is in a pathological condition, still the departure from health is not so great as it is in most other forms of puerperal fever. In the more fatal kinds—for instance, the septicæmic—one source of danger is the want of that very property, plasticity, which is here in excess. The empoisoned and degraded blood is carried to every tissue, every molecule of the body producing fever and extensive phlegmasiæ of low type. The occurrence of thrombosis may therefore be regarded with satisfaction, as indicating a state of blood not apt to produce the severer forms of peritonitis, metroperitonitis, or suppurative phlegmasiæ in the limbs.

The features of thrombotic puerperal fever will, however, reveal themselves more plainly by the presentation of a case.

CASE.—A lady was delivered of her third child after an easy labour. She was of stout frame, but in good health. The delivery took place in the morning; in the afternoon the pulse was 80, and distinctly intermitting. Next day the intermitting character was still observed, but it was slight. Milk came copiously; she was in good spirits, and felt well. She kept her bed, had good diet, and denied all imprudence and exposure, when, thirteen days after the labour, she observed stiffness and pain in the left groin, and a little way down along the course of the femoral vessels; some febrile movement set in; pulse 110. Six leeches were applied immediately. This was followed by great relief; she ate dinner well afterwards. Salines and opiates were administered. Next day (the fourteenth) there was some œdema along the shin, pain and hardness in the calf, and tenderness

along the femoral vessels and deep behind Poupart's ligament ; pulse 110. The leg was enveloped in cotton-wool and oil-silk. On the fifteenth day the pulse was 120 ; free perspiration ; tenderness had appeared in the right groin ; no pain in either limb when quiescent. Prescribed salines, bark, and ether. On the sixteenth day, pulse 120. The perspiration in the night had been very copious, and distressed her by its offensive odour. To relieve this the body was sponged with weak solution of soda. During the succeeding eight days, both legs were swollen, white, tense, pitting slightly, not painful except when moved ; the appetite held fairly ; the pulse ranged from 110 to 120 ; the milk nearly disappeared, and the child was only applied once or twice in the day. On the twenty-fifth day the pulse was 100 ; the general condition was much improved ; the legs were still swollen. On the twenty-seventh day a knot of hard veins appeared in the right thigh, involving the internal saphena, which felt like a hard cord from a little above the knee to half way towards the junction with the femoral vein ; there was a blush of redness over it ; pain ; pulse 110. On the twenty-eighth day, the local inflammation persisting, three leeches were applied. Next day the inflammation had subsided, and the pulse fell to 100. Ordered peracetate of iron. On the thirtieth day another thrombosis appeared on the outer side of the right thigh ; the skin over it was red ; a single vein only was affected for the length of about three inches ; pulse 100. This last thrombosis was felt as a hard cord for some days. The swelling of the legs diminished at first very gradually ; then, about the thirty-fifth day, very quickly : they were supported by flannel rollers. All febrility subsided, the milk returned freely, and at the end of forty days the patient was enabled to go into the country.

These ordinary cases of thrombotic fever, Dr. Barnes believes, are rarely complicated with any marked kind of toxæmia. They are not commonly ushered in, as are almost all toxæmic fevers, by rigors or vomiting. Hyperinosis is the essential primary condition. Ever so little disturbance of the excretory function may determine the blood to clot. The late Dr. F. W. Mackenzie, whose contributions to the pathology of phlegmasia dolens are of the highest value, concluded, partly on a process of statistical induction, the logical accuracy of which is open to question, that a febrile condition implying a morbid state of the blood precedes the thrombosis. Dr. Barnes is quite certain, from the observation of many cases resembling that just narrated, that thrombosis frequently precedes the fever ; that this is a consequence, the exponent, of the local inflammation of the vein and cellular tissue around it, which follows quickly upon the coagulation. We commonly see, as in this case, a succession of thromboses affecting first the iliac or femoral of one leg, then of the other leg, then minor thromboses follow in the trunks or branches of the external or internal saphena, and a favourite seat of election is the venæ comites of the posterior tibial and peroneal arteries : hence the pain so constantly complained of in the calves. Sometimes there is evidence of thrombosis extending from the uterine sinuses to the peri-uterine plexuses, and thus giving rise to pelvic cellulitis. But it frequently happens that in so-called phlegmasia dolens there is no pelvic complication of any moment. Dr. Barnes has assumed that the seat of the disease is essentially in the veins. Dr. Tilbury Fox contends that it is in the

lymphatics. Obstruction of the veins, Dr. Fox says, causes œdema, not white leg. This may be true of slow and gradual venous obstruction attended by degradation of the blood. But these are not the conditions of phlegmasia dolens. Here there is rapid, even *sudden*, thrombosis. The clot in the veins may be detected by the touch almost immediately after its formation. The cases Dr. Barnes has seen could not be ascribed to obstructive pressure either upon the veins or lymphatics. Neither is there sufficient reason to ascribe the thrombosis to " sudden absorption of vitiated fluid." The common signs of entrance of vitiated matter into the blood are usually wanting, and the epoch of appearance of the affection, not commonly earlier than the eighth day, is against this theory. After a week the risk of a puerperal toxæmia is very much reduced. That the lymphatics may be implicated secondarily, there is good reason to conclude. When the venous channels are obstructed, the lymphatics are called upon to perform a larger share of work; the fluid poured out into the tissues which they have to take up may irritate and obstruct the lymphatics; and these are further exposed to be involved in the inflammation of the tissues surrounding the veins which have become the seat of obstruction.

The peculiar character of the swelling, the tenseness, the indisposition to pit, may be accounted for partly by the increased proportion of fibrin in the serum effused, coming as this does from hyperinotic blood, and by the suddenness of the effusion.

Such is the view of simple thrombotic puerperal fever or phlegmasia dolens which appears to Dr. Barnes the most consistent with clinical observation. Loss of blood during labour greatly predisposes to this affection. It occurs frequently in pluriparæ. It is very apt to attack the same woman in successive labours—that is, it is prone to arise in those who have already venectasis of the lower extremities, or a marked disposition to this state.

A few words as to the issues and treatment. Of late years the danger of detachment of portions of the vein-clots, and of these being carried to the heart and pulmonary arteries, has been recognised. Dr. Barnes has endeavoured elsewhere to collect what is known upon Puerperal Thrombosis and Embolia. Dr. Willoughby Wade has also added an interesting illustration of this subject. Dr. Barnes does not think the danger of embolism is great in the pure class of cases of crural thrombosis. Still the risk is serious enough to serve as a caution against premature bodily exertion, or resort to friction of the affected limbs. Either may promote detachment of clot. But the risk of embolism increases when the thrombosis is complicated with marked blood-dyscrasia. Then there is a tendency to rapid disintegration of the clot, and fragments large enough to be arrested in the pulmonary capillaries may be carried to the heart. In the cases thus complicated, however, the toxæmic character so predominates that Dr. Barnes prefers to consider them under the distinctive head of septicæmic puerperal fever.

The treatment may be discussed under the various heads: pro-

phylactic, local, general, and restorative. Local treatment is re-
quired in order to relieve the swelling and pain. The leg must be
kept slightly raised on an inclined plane, and flexed inwards, so as
to take off tension from the affected vessels. Leeching in the seat
of the pain and swelling is commonly of great service, especially
during the acute inflammatory stage. The limb should be wrapped
up in cotton-wool surrounded with oil-silk. This promotes local
and general diaphoresis. After the subsidence of inflammation,
blisters in the vicinity of the thrombosed veins are very useful.
When absorption is resumed, flannel-rollers should replace the
cotton-wool. The indication to give external support to the weak-
ened vessels is obvious.

As more or less paralysis always attends, can anything be done
to help the recovery of the power of motion? After the acute
stage, frictions with oil or camphor liniment are useful; but the
friction should be very gentle, and not prolonged. There may be
danger of breaking up a clot, and so giving rise to embolism.
Galvanism may be tried. It is unwise early to press the patient to
get up and exert herself to walk; when the time for this arrives, it
will mostly be well for her to wear elastic stockings. The general
treatment that appears to him the most successful consists in the
administration of salines with sedatives in the early or inflammatory
stage; then bark or ammonia, and later, iron. Generous diet is
called for. Chicken, game, mutton, if the patient can take solid
food, as she generally can after the first few days, should be pre-
scribed. Wine, either port or good claret, is necessary. It is
desirable here, as in all other forms of puerperal fever, to keep the
circulating system well supplied with generous aliment. If this
be done, the door is greatly closed against the entry of noxious
matters.

Recovery is always tedious. The duration of phlegmasia dolens
may extend to four or even to eight or ten weeks. To indulge in
the hope of much accelerating recovery might, by suggesting active
measures, lead to serious mischief. It is eminently a case for wise
faith in the restorative work of Rest and Time. It is doubtful,
indeed, whether veins which have undergone the distension and
tortuosity consequent upon phlegmasia dolens ever perfectly regain
their original soundness. Some degree of venectasis commonly
persists. The parts so affected are liable at periods remote from the
labour, indeed long after convalescence and presumed recovery, to
become the seat of secondary thrombosis. In a minor degree the
phenomena of phlegmasia dolens may be reproduced. Inflamma-
tion, sometimes erysipelatoid, springs up around the knotted and
thrombosed veins. Febrile reaction ensues. And sometimes
sloughing takes place over the seat of the obstructed vessel, and a
deep, indolent ulcer is formed. A process strictly of necrosis has
occurred as the consequence of arrested circulation and nutrition in
the part. The predisposing cause of this secondary series of events
is manifestly the loss of the physical integrity of the veins. But
Dr. Barnes believes an exciting cause is often supplied by the acci-
dental complication of a degraded or adulterated condition of the
blood favourable to coagulation.

ART. 112.—*On Puerperal Fever.*

By Dr. D. MILLER.

(*Phil. Med. Journal* and *British Medical Journal*, June, 1865.)

Dr. D. Miller, of Chicago, as chairman of a Committee on Puerperal Fever, has presented a report upon this affection. With the most modern pathologists it is considered due to a new element not found in ordinary inflammation, which renders its nature essentially different from peritonitis, phlebitis, metritis, &c. The new element, we are led to believe, is a poison in the blood, producing a septic influence there—and through this medium producing changes sometimes in the tissues of important organs. That the disease is truly zymotic. Its history observes the laws of all poisons. 1. It is an uniform disease; the description given of it an hundred years ago describes the disease of to-day equally well. 2. It selects a tissue for its seat, viz., the serous membranes and tissues analogous to them. 3. The definite action is in the blood ; the quantity of fibrine is increased, its quality is deteriorated. 4. The action of the poison is modified by the quantity introduced into the circulation. When it is in excess the patient may die suddenly without leaving any local manifestations of its presence. When the poisoning is in less quantity, its course is less rapid, and is followed by local changes. Without attempting to trace this poison to its source, or detail its mode of propagation, he concludes that : 1. It may originate within the system from the decomposition of organic matter. 2. It may be introduced from without by exposure to diseases characterised by ichoræmia; or, 3. It may be communicated by the attendant, who is the vehicle of transportation from a distant case. Dr. Miller arranges the treatment under three propositions : 1. Neutralise the *materies morbi* in the system, in the uterus, and in the vagina. 2. Eliminate the disintegrating and effete materials from the system. 3. Support the vital forces of the system. He believes that the first can be fulfilled by *chlorine* and *bromine* as injections into the vagina and uterus; while the second indication is carried out by such articles as are known to arrest the septic influence of the poison already circulating with the blood ; such as the mineral acids, chlorine salts, the bromides and sulphides. The third object is accomplished in the usual manner by nutritious food and judicious use of alcoholic preparations.

ART. 113.—*Delivery during Sleep.*

By ADOLPHUS SAMELSON, M.D., Manchester.

(*British Medical Journal*, November, 1865.)

The following case is recorded by Dr. Samelson :—

" In the evening of February 22nd, 1844, I was sent for to Zabelsdorf, a village near Zehdenick, in the Uckermark, where I

then resided (some thirty miles from Berlin), to attend a case of labour. Hannah Rohde, the wife of a farm labourer, about forty years old, of middle size, spare habit, and sallow complexion, having had eight children, of whom three were living, had passed easily through all her confinements; but, immediately after several of the births, especially after the eighth, she had for a short time been unconscious.

"At about 1 A.M. on the above day some blood was first observed to come from the vagina; however, it stopped again, when about noon a more copious flow set in, which now continued through the afternoon, and soon associated itself with unconsciousness. At 7.30 P.M.—the time of my arrival—I found the os uteri pretty well dilated, and the membranes fairly distended, but the head placed quite to the right, and still so high that the particulars of the presentation could not be verified. Towards the right, partly in front, and partly to the side of the membranes, the placenta could be felt. The flooding had ceased. The woman did not recognise any one, and answered incoherently. The pulse, but little accelerated, and at first weak, became somewhat fuller soon after my arrival. The skin perspired moderately. During the afternoon, one single pain had been felt. From time to time the membranes grew a little more tense, but the woman made no complaint; she only appeared to feel rather hot. She was placed on her left side—that opposed to the uterine tumour. She kept pretty quiet in this posture, appeared to sleep tranquilly, and after a time awoke a trifle more conscious. Soon, however, she relapsed into her doze. A few slight twitchings of the arms had been observed meanwhile. At ten o'clock the messenger returned, who had been sent for some ergot to the town, about six miles distant. At five minutes past ten I gave half one of the ten-grain powders ordered. Almost immediately a labour came on; but, even before it was observed, the woman exclaimed, 'The water!' The membranes were ruptured; the head had at once descended lower; it soon placed itself right in the middle of the pelvis, and came further down. Fifteen minutes after the first, the woman got another dose of ergot, of two-and-a-half grains only (the midwife in attendance having mistakenly once more divided the half-powder left); fresh labour-pains ensued, which, thirty-five minutes after ten, caused the face of the child to appear at the outlet. The entire body followed rapidly, and was immediately succeeded by a great gush of blood, welling out in two or three large waves. Within a few minutes more, the placenta, perfectly normal, came away; the funis was rather short.

"The child, a middle-sized male, was some little time before he made himself heard. Only by degrees the woman's consciousness returned; she felt weary, and was much inclined to sleep. Soon after eleven o'clock she had recovered her senses, and was not a little surprised at what had happened. The uterus kept contracting satisfactorily; nothing unusual further occurred. The number of pains had been seven or eight in all. As a stimulant, about three tablespoonfuls of poor Sauterne wine had been consumed during the process."

Art. 114.—*Electro-magnetism in Post-partum Hæmorrhage.*

By Mr. Parsons.

Mr. Parsons, of Liverpool, relates the subjoined interesting particulars :—

"The following case, illustrating the beneficial effects of electro-magnetism in post-partum hæmorrhage, is, I think, worthy of record, for it more than answered my most sanguine expectations, after hand-pressure on the uterus, pressure on the abdominal aorta, ergot, and the cold douche had failed. Mrs. B——, a fine, healthy young woman, twenty-seven years of age, was suddenly seized with violent labour-pains, at one o'clock, P.M., November 24th, 1864. She sent immediately for me, but I was unfortunately out at the time. Messengers went in every direction for a medical man, and a considerable time elapsed before any assistance could be procured. Dr. Watters, St. Anne-street, at length arrived, and found one child born, and Mrs. B. flooding a good deal. He detected another child in the uterus, made pressure on the fundus, and, presentation being natural, delivery was easily and rapidly effected. The flooding now became profuse and alarming, and Dr. W., finding the placenta adherent, introduced his hand into the uterus, cleared out its contents, applied a bandage and pad and cold to the vulva. My assistant, Mr. Burrows, now arrived, and Dr. W. left the case in his hands. Notwithstanding all his efforts to arrest the hæmorrhage, Mr. Burrows saw that the patient was sinking rapidly. He tried ergot without producing any uterine contraction. He then removed the binder and grasped the uterus, directing the attendants to administer brandy freely. He tried the cold douche; but still the hæmorrhage continued. He then made pressure upon the abdominal aorta, and for the first time he observed a beneficial result; the flooding was arrested. He kept up the pressure for an hour. I then arrived (at half-past three o'clock), and was shocked at the sight which met my gaze on entering the room. The patient, anæmic, cold, almost pulseless, was lying in a pool of blood. There was only a slight draining from the uterine sinuses. I felt the uterus through the abdominal walls : it was large, flabby, and felt empty. I passed one hand into the cavity and removed a few small clots, at the same time keeping up pressure with the other hand. Finding that neither pressure nor the irritation of the hand in the uterus excited any muscular contraction, it occurred to me that electro-magnetism was our *dernier ressort*. I relieved Mr. Burrows in keeping up the pressure on the abdominal aorta, and directed him to drive to my house for my electro-magnetic apparatus. He arrived in a few minutes, and I proceeded without delay to apply one pole inside the uterus, while the other was being applied externally over the abdominal walls. The lowest power was first used, and then gradually increased to a medium. In a few minutes I felt

slight contraction, and after continuing the current for half-an-hour I was enabled to grasp the whole of the uterus in my hand. I retained it in this manner for better than half-an-hour, and then applied a tight binder and pad. After clearing away as much of the *débris* as possible, Mrs. B. became quite conscious, and complained of being cold. I gave some brandy and hot water, and, fearing to continue hot drinks, I put extra clothing over her, and directed a female to lie beside her. When she became warm, she fell into a doze. I left her for a short time now, five o'clock.

"At six o'clock very sick; skin warm; pulse 140; complained of binder being very tight. Ordered chloric ether and spt. ammon. co. every half-hour: the binder to remain. No flooding.

"Half-past nine.—Improving in every respect. Ordered the mixture every hour; cold beef-water for drink.

"Mrs. B. continued to improve daily, and was afterwards enabled to nurse both children. She is now, August 16th, 1865, as florid and healthy-looking as ever.

"In this case the patient owed her life, in the first place, to the pressure which was maintained so persistently on the abdominal aorta, and most assuredly also to electro-magnetism. Had transfusion been used here, the vital fluid would have permeated the system only to find an exit through the patent uterine sinuses. I have used the electro-magnetic fluid in one other similar case with the like beneficial result."

Art. 115.—*Case of Missed Labour.*

By Professor Simpson.

(*Edinburgh Medical Journal*, December, 1865.)

At a meeting of the Obstetrical Society of Edinburgh, Professor Simpson exhibited a foetus which had been retained *in utero* for more than twelve months. He had seen the patient, with Dr. Finlay, of Newhaven, six days before her death. She had expected to be confined in the end of January or beginning of February—the last menstruation having taken place nine months previous to that period—and had engaged a midwife to attend her. The anticipated confinement, however, did not take place. On the 13th of April, Dr. Finlay was sent for in consequence of the discharge of a fleshy and putrid substance from the vagina. Mixed up with the mass, which Dr. Finlay believed to be a placenta, there was something like an umbilical cord. For eight or ten days previous, a bloody and watery discharge had been escaping from the vagina. The expulsion of the mass was unaccompanied by pain; nor, indeed, did the patient experience pain throughont the course of her illness. On the 8th of May, Dr. Finlay saw her again, and brought away from the vagina a foetal tarsal bone. Professor Simpson visited the poor woman that evening with Dr. Finlay, and passed a sound several inches into the uterus, its top coming into contact with bony

matter, and fixing the diagnosis. The os uteri was almost quite closed; an intolerably offensive grumous discharge was coming away from the vagina, and the pulse was very rapid and weak. He recommended that ergot of rye should be given, and that if it failed to excite uterine contractions, the os uteri should be dilated with sponge-tents, and the fœtus extracted. Sickness and vomiting supervened in a day or two, and the patient sank, and died on the 14th of May. She was in her twenty-sixth year, and had borne two children at the proper time—the first labour having been a natural one, and the second complicated with placenta prævia. On *post-mortem* examination, the fœtus was found lying with its nates downwards, and its head doubled in on the chest and abdomen, and was squeezed into such a firm mass that at first it seemed impossible to distinguish one part from another. It was converted into a substance resembling adipocere, and had a highly offensive odour. The uterus was firmly adherent to the abdominal walls in front and at the sides, to the small intestines behind, and to the colon above. An opening, rather larger than a half-crown piece, connected the transverse colon with the uterine cavity. The walls of the uterus were almost as thin as parchment, and consisted of areolar tissue, mixed up with unstriped muscular fibre, in a state of fatty degeneration. Professor Simpson stated that cases of missed labour—as they had been termed by Dr. Oldham—formed one of the rarest of all the forms of morbid parturition in the human female, for not more than perhaps a dozen were to be found in all the records of obstetric medicine. Dr. M'Clintock had published a few interesting cases of this class in the *Dublin Quarterly Journal* for last year. Though missed labour occurred so rarely in the human subject, it was not very uncommon in the sheep and cow.

In the discussion upon this case, Dr. Keiller remarked that he had seen a case of the kind referred to by Dr. Simpson. The patient was some time ago sent into one of Dr. Keiller's wards in the Royal Infirmary, as one labouring under malignant disease of the uterus. There was very fœtid discharge, and in consequence of this and other symptoms, as if indicative of cancerous degeneration, the patient stated that she had been frequently " burned with caustic " for its removal. Dr. Keiller discovered, on examination, the cause of the fetor, which was the slow putrefactive process going on during the breaking up and expulsion of a long-retained dead fœtus. Dr. Keiller was led to the properly diagnosing of this case by finding small fœtal bones discharged from, and lying in, the passages. A number of these bones were collected, and were now in Dr. Keiller's museum.

Dr. Young had a case under his charge many years ago, where several bones had been passed; but he had kept no notes of the case.

Art. 116.—*Facilitation of the First Stage of Labour.*

By Dr. Andrew Inglis.

(*Edinburgh Medical Journal,* July, 1865.)

Dr. Inglis maintains that the most efficient means hitherto proposed for facilitating the first stage of labour is to separate the membranes for some distance round the os. He calls attention to the effect on the character of labour of such a separation. He states : " In the first stage of labour coming on and proceeding without interference, there are two opposite conditions of the passages—one in which there is a copious discharge of viscid mucus, and which is often called a 'wet labour ;' and another, in which there is hardly any, and labour is called 'dry.' At the full time, the first seems to occur normally in the cow, mare, bitch, &c., and I am inclined to believe is natural also in the human female. I consider the following as being the natural process in women : The ovum having become ripe, the membranes separate from the cervical portion of the uterus, if not from the whole surface. They then by their weight press more heavily against the cervix, even when the patient is lying down ; and as the pressure is soft, equable, and continuous, the cervix gradually yields to it and becomes quite slack, and this takes place without the occurrence of pain. Next, when relaxation has become complete, the mucous discharge commences proceeding from the uterus. Finally, a pain comes on and terminates the first stage. That the discharge comes from the uterus is shown by its protruding from the os previous to its appearance in the vagina. Besides, it is only found when the membranes are already separated, and is very often tinged with blood before pains have been felt. A process resembling this form of the first stage may be seen where the other muscular canals are concerned, and perhaps most prominently in the case of the rectum. If the finger or bougie is gently and cautiously inserted past the sphincter ani, and kept there for some time, complete relaxation gradually ensues, a profuse discharge from within the sphincter comes on, and, if the bougie is allowed to remain long enough, the muscular fibres above begin expulsive action.

" The foregoing explanation seems equally applicable to 'wet' cases of abortion or miscarriage in the human subject, except that in such cases healthy ripening of the ovum cannot be said to be the cause of the separation of the membranes."

Dr. Inglis says that he has seen many examples where the first stage has been sudden and short on account of previous separation of these. Three of these he relates.

The following are his conclusions :—

" 1st. The easiest form of the first stage of labour is characterized by protrusion of the membranes and a copious discharge.

" 2nd. These are always direct consequences of separation of the membranes.

" 3rd. The result of artificial separation seems precisely similar to that of spontaneous.

"The following is the practice I would recommend in regard to separation of the membranes: 1st. That it should always be the initial measure in the induction of premature labour; and that until complete relaxation of the os has resulted from it, there should be no further interference of any other kind; 2nd. That when labour has begun without previous separation of the membranes, and these are still adherent, they should always be at once separated, as the best means of overcoming the rigidity of the os, and the painful and prolonged first stage, which almost invariably accompany such a state of matters.

"In the latter of these two cases, if the pains are severe and ineffective, I should be inclined to recommend sedatives to be given at the same time, in the hope of gaining time for painless relaxation to take place.

"With regard to the means of separating the membranes, I have in most cases been able to do it with the finger, though in one or two an instrument was required. In one case, which I have not reported, I could not at first get the finger far enough in to effect any extensive separation; but the small portion round the os, which was thus denuded, was so relaxed an hour after that I was able to insert the whole finger and separate to the desired extent."

Where he has used an instrument it has been Dr. Hamilton's uterine belt.

The usual history of primiparous cases seems, Dr. Inglis thinks, to be confirmatory of his views. "The duration of the pregnancy," he says, "being generally shorter, labour commences before the separation of the membranes has occurred, and the first stage is in consequence much slower than in subsequent labours. This is commonly supposed to be the result of the absence of that mucous discharge already referred to, but I think, in reality, chiefly arises from the want of previous separation of the membranes, of which the mucous discharge is only a symptom."

Art. 117.—*On the Use of Ergot in Cases of Tedious Labour from Inefficient Action of the Uterus.*

By Dyce Brown, M.A., M.D., Fellow of the Obstetrical Society of London.

(*Medical Times and Gazette,* November, 1865.)

Dr. Dyce Brown has the following observations on this subject:—

"Of all the causes of tedious labour, none is more commonly met with than inactivity of the uterus; for, besides being in many cases the sole cause of the delay, in many also it is superadded on other causes, such as disproportion between the pelvis and the child, thus complicating the case, and obliging us to modify our treatment accordingly. Were it not for cases being often thus complicated, the treatment of inactivity of the uterus would be comparatively

simple ; but it is because this so frequently happens that we are obliged to be most guarded, lest the treatment become productive of more harm than good. It is unnecessary for me to take up space and time in recounting the causes of inefficient action in the uterus, and of the particular cases, comparatively few in number, in which we can, with perfect safety to the mother and child, administer the ergot of rye, as is usually done, in half-drachm doses of the powder, or corresponding quantities of the liquid preparations. These will be found laid down with sufficient clearness in systematic works on Midwifery, and they are well known. As to the causes of inefficient uterine action, I may remark that very frequently we cannot fix upon anything with certainty as the cause, and it is in these cases especially that ergot is most called for and beneficial. Of course, when the cause is obvious, other treatment with a view to its removal is more appropriate. The reason of ergot being inadmissible in so many of the cases of labour, with the complication we are now considering, is the exceedingly powerful effect which is apt to be produced by the ℨss. doses of the powder—excessive and often continuous pains coming on, even after a single dose. This result is, as well known, most dangerous to the mother, unless the case be what one might call a typically normal case (barring the want of uterine action), and to the child, unless the labour be completed in about an hour and a half after. But if we could give the ergot in such a way as to avoid this excessive action, and produce pains, when they are absent or inefficient, closely imitating, or not to be distinguished from natural pains in their strength and period of intermission, it is obvious that not only will it be much safer and better to use it thus in cases where there would be no risk with the usual doses, but its range of action will be much increased, so as to include cases where it is inadmissible in the usual mode of exhibition. Such an object can be obtained by the very simple plan of giving the ergot in doses of five or six grains of the powder. I mention the powder (which ought to be fresh ground), as I always use it in preference to the liquid preparations, on account of its certainty.

"The idea of using these small doses first occurred to me from observing the frequent unmanageable action of the usual doses ; and with the object of trying to get a mild action such as I have above described, I used gradually decreasing doses, till I came to about five grains. Ten grains seemed to produce, in the cases in which I used it, a safe, moderate, and natural amount of action ; but as some constitutions are certainly more susceptible of the action of ergot than others, it is quite possible that even ten grains might in some other cases have produced more powerful action than I wished to bring on. I therefore think five grains is the best dose to use, as it cannot have a violent action, and there is no good in using a smaller dose than this, as it is uncertain in its action, though I have succeeded with about three and a half grains. Given in this manner, in the majority of cases, after a single dose, uterine action becomes increased in from five to twenty minutes, and the pains exactly resemble normal uterine pains in their strength, duration, and period of intermission ; in fact, they are what might be called excel-

lent, laudable pains, and no more. Sometimes the first dose seems inoperative, or at least not sufficient to bring the uterine action up to the required standard. In this case, after an interval of a quarter of an hour or twenty minutes to watch its effect, the dose may be repeated a second time. Rarely have I found that a third dose required to be given; while if no action is produced by the third dose I believe the constitution will be found to be unsusceptible of the action of ergot. I before remarked, that different constitutions differ in their susceptibility to this drug, and I am satisfied that this sometimes goes to the extent of complete unsusceptibility. . . .

"I come now to make some deductions. If the position I have taken up be true—that ergot in these small doses induce uterine action in cases of inactivity of the organ, in as short a time as with the larger doses, the pains induced being normal, and of good strength, but not approaching the excessive and long-continued pains produced by the large doses—it follows that its range of action can, with perfect safety to the patient, be much enlarged beyond the limits usually assigned to its use. Let us see, then, in what classes of cases this method of administering ergot is safe and beneficial.

"1. In ordinary cases where the os is dilated or dilateable, the head and pelvis in relative proportion, the head low down, and the perineum relaxed, it is, to say the least, unnecessary to give the large doses, as the small ones possess all the advantages of the larger, without their disadvantages. These disadvantages I partly mentioned before; but there are two others which I may here allude to —viz. (1), the frequent production of sickness, which I have never seen produced by the small doses, and (2), the injurious effect on the child which is occasionally observed. It is well known that ergot given to the mother in the usual doses does cause sometimes the death of the child; nay, more, I have seen it evidently the cause of the child's death when only one dose of ℥ss. was given. Dr. Ramsbotham (Appendix C., *op. cit.*) brings forward proofs of ergot causing the death of children from convulsions while still *in utero* immediately before delivery. This mortality is to be ascribed possibly, to some extent, to the poisonous effect of the drug upon the child's system, and partly, Dr. Ramsbotham says, 'it may be instrumental in destroying the child by the kind of uterine contractions it induces; for they are not only often preternaturally powerful, but uninterrupted and without intermission for a long continuance of time, during which there must, of course, be dangerous pressure on the blood-vessels in connexion with the fœtal body.' This effect I have not seen produced by the small doses, partly, perhaps, because they are too small to exert their poisonous influence, if there is any, and partly because the kind of pains induced are so mild and normal that no extra pressure is made upon the fœtal vessels by excessive contractions. On this point Dr. McClintock remarks, in a recent paper read before the Obstetrical Society of Dublin, that 'the common voice of experience proclaims that the danger to the child is in proportion to the intensity and uninterruptedness of the pains; and that when these are only imperfectly developed by the ergot, or are distinctly intermittent, hours may elapse with impu-

nity to the fœtus.' And that 'where ergot is not given in a full dose, nor in the second stage of labour after the discharge of the waters, nor with the effect of exciting persistent uterine contraction, then, under any of these circumstances, there is little or no risk of injury to the child.' Here the evidence of experience would be à *priori* in favour of the use of the small doses, when the safety of the child is kept in view.

" 2. When the os is not fully dilated, nor yet perhaps more than slightly dilateable (provided it is not a case of 'rigid os'), and the pains absent or inefficient, ergot given in the way described is quite safe and efficacious in producing its further dilatation, and the consequent progress of the labour.

" Naturally the dilatation of the os is accomplished by the uterine contractions pressing the bag of the membranes or the head upon the os. If, then, nature has gone so far with its ordinary process, and then ceases to set in motion the very means by which the effect is to be produced, or acts only to an insufficient extent, there is no reason why we should not substitute here also art for nature, provided there is no risk in doing so, which I believe to be the case with the small doses. Besides, in cases of induction of premature labour, ergot is frequently given before the os is fully dilated or even dilateable ; nay, more is given in these cases by eminent men *ab initio* in order to bring on labour. And Dr. Ramsbotham says (*op. cit.*, p. 332), that under its use in scruple doses every four hours he has ' generally remarked that the os uteri has become soft and somewhat opened under the action of the drug.' Therefore, à *priori*, I see no reason against using the ergot in the proposed method, even in the case of a partially-undilated os, provided always it is not a case of ' rigid os.' This last remark is almost unnecessary, as the condition called ' rigid os' presupposes strong pains, which, however, are totally ineffectual in dilating the part. Hence it is clear that this condition does not come within the limits of this paper, in which I am considering only cases of inefficiency of action in the uterus. As I have had occasion to speak of ergot in the induction of premature labour, I may here suggest the use of the small doses in preference to the large, when it is wished to employ the drug either alone or in conjunction with other means, as they will be so much safer.

" 3. The fact of the presenting part being high up is no obstacle, in the absence of pains, to the safe method of giving ergot here proposed. Of course, it is needless to say that if the presentation were beyond reach of the finger, no absence of pains would induce me to use ergot till I had first made out its exact nature.

" The fact of the head not being the presenting part does not militate against the use of ergot as proposed, provided that it is not the shoulder, arm, funis, or placenta which present. The reason of these exceptions is obvious, as the absence or weakness of pains is a thing to be desired to facilitate the turning of the child. Even in certain cases where the funis presents it is admissible—namely (1) where the coil of the cord presenting is so small as to be easily pushed up above the head (in which case the presence of a few good

strong pains, during which the cord is retained by the finger above the head, would prevent a return of the prolapse), then, in the absence or inefficiency of this necessary uterine action, the ergot in the small doses as proposed would be advantageous ; or (2), where, instead of turning, Sir Richard Croft's method of taking the prolapsed coil to the fundus of the uterus, and there hooking it over one of the limbs, is employed, the presence of good pains, as in the last case, prevents the possible return of the cord by the head being forced further down into the pelvis. Then, as before, if these pains are not present, our remedy would be advantageous. In other presentations than those excepted, no harm can result from the use of ergot here spoken of. Exception may be taken, perhaps, to my including cases of face-presentation, which, though often finished naturally, sometimes require the forceps. My reasons for saying it is admissible even in these cases, presupposing always a deficiency of pains, will be seen when I speak of the next class of cases—namely—

" 5. Those where the pelvis is not roomy, or the head is perhaps slightly large, or unnaturally ossified—where we have supicions that the forceps *may* be required, but when this would only be had recourse to after giving the powers of nature a fair trial—in such a case, in absence or inefficiency of pains, since the effect of good normal pains is the only means of judging of the powers of nature to complete the delivery, I see no objection to this modified use of ergot, since I have found it to be perfectly safe, and only bringing on pains of natural strength. We have done no harm, only imitated nature, and if we find the delivery cannot be accomplished naturally, we can then, still all the same, resort to the forceps. In fact, though the forceps have to be used, the having induced good pains is advantageous for the expulsion of the rest of the child, and for the subsequent contraction of the uterus.

" 6. In cases of general irritation combined with inefficient action of the uterus, the mild action of the small doses of ergot would tend much to remove this by hastening the labour, and thus doing away with the cause of such irritation ; and—

" 7. The fact of the patient being a primapara in no way militates against the use of the ergot as proposed, since all fear of ruptured perineum, &c., from undilated passages is needless. This process of dilatation is accomplished principally by the gradual pressure of the head on the parts from uterine contractions, and if, as before suggested, nature denies the very means of accomplishing this object, there is surely no objection to the use of a perfectly safe substitute.

" To sum up—if called to a case where the labour was brought to a stand-still by the cessation of pains, or was progressing at an annoyingly slow rate, provided that no obvious cause were present which ought to be removed, and that there was no *manifest* deformity or disproportion between the head and the pelvis, and that the presentation was not an arm, shoulder, or funis (the special cases of funis presentation before mentioned being excepted), I should not hesitate at once to give five grains of ergot infused in hot water, and repeated in twenty minutes if no action ensued. I should not

often expect to have to repeat it a third time; and as the result of this I should have perfect faith in the rapid production of a series of excellent pains, of normal strength, exactly imitating the natural contractions of the uterus, and thus involving no danger whatever to my patient; whereas, if I were not aware of this practice, I might possibly have to wait a long time for nature to do her work, knowing that there was a risk in giving ʒss. of ergot as a dose. With regard to the irregular contraction of the uterus said to result occasionally from the use of ergot, I have seen it once in a case where the small dose was given, and where the placenta was retained; but as I have seen the same thing happen in similar cases where no ergot was given, I am not sure that I should in this case lay the blame on the ergot; at all events, this result, when really caused by the ergot, would, I should think, much more rarely happen in carrying out my proposed modification. Of course, after the birth of the child and the placenta, where hæmorrhage occurs from want of sufficient contraction of the uterus, I should then give at once ʒss., as our object is to get its full and immediate action, and good instead of harm will result from its powerful effect."

ART. 118.—*Case of Puerperal Tetanus, following Abortion and Plugging of the Vagina.*

By JOSEPH BLACKSHAW, Esq., Stockport.

(*British Medical Journal,* September, 1865.)

Mr. Blackshaw relates the following case:—

"On Saturday, November 8th, 1864, I was called to see Mrs. H., aged forty-eight years, the mother of a numerous family, of a highly nervous temperament, and whose general health had previously suffered from some domestic anxieties.

"She was in bed, very faint from profuse hæmorrhage from the uterus. I made an examination, and detected an ovum of about ten weeks' growth within the os uteri. In consequence of the amount of the hæmorrhage, I plugged the vagina; ordered cold applications, stimulants, and the usual astringent remedies, including the ergot of rye; and she rallied in the course of the following day. The plug remained in the vagina twelve or fifteen hours, and, when removed, was not again resorted to, as the hæmorrhage had almost ceased, and the ovum was expelled a few hours afterwards. She progressed satisfactorily for about nine days, at the end of which time she was able to sit up, and about to leave her room. Thinking it unnecessary for me to continue my visits daily, I left her with directions to report to me her progress.

"On the day following (Tuesday), just ten days from my first visit, I was unexpectedly requested to see her. She thought she had taken cold, and was then complaining of great stiffness of the deep-seated muscles of the neck and throat, with difficulty of swallowing, and was unable to open her mouth perfectly. As there

was some febrile excitement, she was ordered to remain in bed, and
to take a saline mixture with an aperient ; to use hot fomentations ;
afterwards hot moist bran ; to steam the fauces ; and, if possible, to
use a gargle.

"On the two following days, Wednesday and Thursday, the
painful tension of the masseters, as well as the muscles of the neck
and throat, had so greatly increased as to prevent deglutition and
bring on a state of perfect trismus. On Thursday afternoon and
evening, the tetanic seizures became increasingly frequent, pro-
ducing great muscular rigidity, contortion of features, and slight
opisthotonos. During the paroxysm, the pulse was small and feeble ;
but the consciousness was entire throughout. She continued in
this state until Saturday evening, the tetanic spasms and opisthotonos
gradually becoming more severe, when she died from exhaustion,
five days from the first setting in of the tetanic symptoms.

"Owing to the clenched state of the jaws, little was done in the
way of treatment, beyond a little counter-irritation to the spine ;
the administering of a turpentine enema ; and the removal of fœcal
accumulations, which might prove a possible source of spinal irri-
tation.

"Puerperal tetanus is a very rare species of that disease in this
climate; and this must be my apology for this communication. I
have been in practice in this town for more than thirty years, the
greater part of which I have been medical officer to a large district of
a Poor-law union, including the union workhouse, and must have at-
tended three or four thousands of women in labour at different periods
of utero-gestation ; and this is the first case that has occurred in my
public or private practice, or, so far as I can learn, in that of the
oldest obstetrician either here or in Manchester, with the exception
of one case mentioned by Dr. Whitehead. Dr. Radford considers
it a rare disease, but has known it to occur. Mr. Robertson, of the
same city, also says that obstetric tetanus is a novelty to him, and
that he has never seen it during a long and laborious practice. Nor
is the disease one usually recognised in treatises on midwifery and
the diseases of lying-in women. The extreme rarity and infrequency
of this disease, notwithstanding the various lesions from the applica-
tion of instruments, manual interference, turning, and other violence
that the uterus must often sustain in protracted and difficult labours,
points to a very different state of the nervous system from that
which gives rise to traumatic tetanus in the various external injuries
to which the body is subjected. Physiologists attribute this to the
uterus receiving its nerves from the great sympathetic. It may be
so. But of what that peculiarity of the nervous system consists in
these cases, where the irritation from the uterus, as in the case of
Mrs. H——, is propagated to the cerebro-spinal system, is still
shrouded in mystery. We can only say that, in the case of my
patient, cold applied to the body, previously lowered by mental
anxiety and loss of blood, may have given rise to a state of reflex
spinal irritation, followed by tetanus ; though probably, in ten
thousand other instances, the same exciting causes would produce
no such effects.

"I regret that chloroform was not tried, as, besides the good effects it is said to have in convulsive diseases, it presents facilities of application where no internal remedy can be given.

"My object in this communication is rather to seek than give information ; and I trust that some of our more learned associates will ere long throw some fresh light upon this class of diseases, which are yet among the *opprobria medicorum*."

(B) CONCERNING THE DISEASES OF WOMEN.

ART. 119.—*Amenorrhœa*.

By M. RACIBORSKI.

(*Medical Circular*, August, 1865.)

The history of ovulation has supplied M. Raciborski with a new field of inquiry, which he has laboriously cultivated, and in which he has succeeded in discovering new physiological aspects unknown to, or at least not described by, his predecessors. Amongst other interesting subjects, he expatiates on a form of amenorrhœa due to mental causes, such as excessive dread of pregnancy, or, on the contrary, an inordinate desire of bearing children. (*Archives de Médecine*, May, 1865.)

In the male, mental pre-occupation greatly influences the pro-creative function. Montaigne, in his remarks on the power of imagination, relates an instance of transient sexual incompetency, of which, in all probability, he had himself been the subject. Incapacity of this kind is of frequent occurrence, and inspires no anger to a sensible wife, aware that kindness will prove far more successful in restoring power than bitter reproach and offensive expressions of scorn. The physiological explanation of this un-satisfactory condition is simple. In consequence of the apprehen-sion of failure, the mental frigidity is conveyed by the sympathetic system of nerves from the brain to the organs of generation, and the result is an entire cessation of their powers of expansion. Under the influence of the vaso-motor nerves, the blood-vessels of these organs contract, the temperature of the part is lowered, and a con-dition ensues in which sexual access becomes impracticable.

M. Raciborski, arguing from analysis, opines that the excessive dread of pregnancy, or the immoderate desire of bearing children, act on the female in a somewhat similar manner, and may induce more or less delay in the appearance of the catamenia, and even a protracted state of amenorrhœa.

This author was consulted on several occasions by women who, after a long struggle, had yielded to their feelings and forgotten their virtuous resolutions. Alarmed at the possible consequences of their imprudence, and living in perpetual terror of pregnancy, they impatiently counted the days which must intervene before the return of the menses, and anxiously watching for the usual pre-

monitory symptoms, awaited in a state of most distressing perplexity the time at which their worst fears might be allayed or confirmed. In a case of this kind, a lady, usually perfectly regular, was thrown by a delay of one week into a state bordering on insanity. The treatment adopted by M. Raciborski consisted in arguments calculated to remove her fears, to which he mainly attributed the alarming postponement of the catamenia, and in the exhibition of harmless remedies. He prescribed gentle anodynes, and the mildest form of stimulants, such as a few drops of liq. ammon. acetatis in lime-flower, or black-currant tea, and mustard foot-baths. After an interval of two days, the menses reappeared, and the delighted patient solemnly declared that the lesson would never be forgotten.

On the other hand, M. Raciborski asserts that too ardent a wish for children may also act in a reflex manner on the vaso-motor nerves of the ovaries, and induces amenorrhœa.

" In young married women," says he, " it is not unusual to observe at several successive monthly periods a delay of a few days before at last they become really pregnant. These delays are, in a certain degree, referable to a strong desire to have a family. When, however, several months have elapsed without any sign of this much wished-for result, the anxiety on the subject often becomes excessive ; and constantly preoccupied with one idea, that she may be sterile, the young wife feels happy when, at the return of the date at which the menses may be expected, she experiences none of her customary symptoms ; she hopes that the catamenia may fail, and that at last she is pregnant. At each monthly period she is agitated by the same hopes, and, to avoid a disappointment, submits to all manner of precautions. Between this kind of amenorrhœa and that we have previously described, a considerable difference exists. In the former, when the patient dreads pregnancy, every effort is made by her to bring on menstruation, which, in general, reappears in the course of a few days. In the latter, on the contrary, all the precautions taken to prevent the frustration of cherished hopes, the absolute repose joyfully submitted to, the complete abstinence from any cause of mental or physical excitement, all contribute to perpetuate the modified condition of the ovarian circulation, and to protract the duration of the amenorrhœa. The greater number of the cases of what has been termed *Grosesses nerveuses*, recorded by various authors, have no other origin, and are almost invariably instances of protracted amenorrhœa referable to this cause."

M. Raciborski relates an interesting case in point ; but his remarks on the variety of amenorrhœa *due to the apprehension of pregnancy* appear to us original, and deserving of the attention of the practitioner.

Art. 120.—*On the Influence of Uterine Displacement upon the Sterile Condition.*

By Dr. Marion Sims.

In a communication to the Obstetrical Society of London, Dr. Marion Sims said that we were all interested in the subject of sterility, when we remember the fact that every eighth marriage was sterile. He did not propose then to give us a complete paper on the subject, but only to present it in one of its relations, viz.: that of its dependence upon misplacements of the uterus. He divided his sterile patients into two classes: 1st. Those who were married a sufficient length of time and did not conceive; 2nd. Those who had borne children, but for some reason ceased to do so long before the termination of the child-bearing period. The first he called "natural sterility;" the second, "acquired sterility."

To show the frequency of uterine displacements in this relation, he said that of 250 cases of "natural sterility" that had fallen under his observation, 103 had anteversion, and 68 retroversion; and of 255 cases of "acquired sterility," 61 had anteversion, and 111 retroversion, the anteversions predominating in the first class, the retroversions in the second—the two opposite displacements being almost in inverse proportion in the two classes, and forming about two-thirds of the whole number, being 343 out of 505 cases; which proved beyond question the bearing and importance of these displacements in connexion with the sterile condition. He then illustrated by diagrams the normal position and relations of the uterus, explained the various causes and complications of anteversion, whether dependent upon fibroid tumours, elongation of the infra- or supra-vaginal cervix, shortening of the utero-sacral ligaments, or hypertrophy of the fundus. In all these cases, he said, we could not do much for the relief of the sterile condition by merely mechanical means; that our efforts should be directed to seeing that the os tincæ was properly open, that the canal of the cervix was free from engorgement, and that the secretions, both vaginal and cervical, were not poisonous to the spermatozoa. He said that there was one form of anteversion that was easily cured by a simple and novel operation, which he originated some eight or nine years ago. He illustrated this by cases and diagrams. It was as follows: The uterus lies down on the anterior wall of the vagina, and parallel with it. The fundus is most usually the seat of a fibroid growing anteriorly. The anterior wall of the vagina is greatly elongated, the os tincæ pointing directly backwards. Under these circumstances, he has shortened the anterior wall of the vagina an inch and a half, by denuding a surface a half inch wide and two inches long across the axis of the vagina in juxtaposition with the cervix uteri, and making a similar transverse scarification parallel with the first, about an inch and a-half, more or less,

anteriorly to it, and then uniting these two transverse cut surfaces by silver sutures, just as we would unite the edges of a transverse vesico-vaginal fistula by them. This necessarily shortens the elongated anterior wall of the vagina, draws the cervix forwards into its normal relations, and as a consequence elevates the fundus. He related several successful cases of this operation, and had seen it followed by conception and child-bearing. He then passed to the consideration of retroversion as influencing the sterile condition, pointed out its varieties and anomalies, and showed how it was to be diagnosed and how replaced. By diagrams he illustrated various modes of reduction, showed how conception was difficult, and sometimes impossible, in some forms of retroversion, advocated mechanical treatment, pointed out the danger of pessaries, but advocated their use when judiciously applied under proper circumstances. He prefers a malleable ring, either of block tin, or a ring of copper wire covered with gutta percha, and then bent or curved to the proper diameters of the vagina of each patient. He said this was a modification of Hodge's pessary. Under some circumstances he also uses Meigs' ring pessary, made of watch spring covered with gutta percha. He pointed out the peculiar advantage of each of these, and paid a just tribute to his countrymen, Drs. Hodge and Meigs, who were the earliest advocates of mechanical treatment of uterine displacements. He said that the great secret of treating the sterile condition when dependent upon retroversion was to adjust a malleable ring which would hold the uterus in its normal position, and which was to be worn always during the act of coition. He explained its philosophy, its efficiency, its safety, and its harmlessness, and related a great many cases in which its use had been followed by conception; one after a sterile marriage of six years, another of ten years, another of fifteen years, and others at various periods of time after sterile marriages. He also showed how miscarriages, often dependent upon this displacement, are prevented by the use of a properly fitted malleable pessary. He then pointed out the course to be adopted when it was impossible for the patient to wear a pessary, showing why it was so, and what was to be done.

Art. 121.—*Gonorrhœal Hysteria.*

By M. Beau.

" M. Beau has, on more than one occasion, shown, at the bedside of his patients, that in women gonorrhœa often induces the development of hysteria, and thus gives rise to what may not inappropriately be termed *gonorrhœal hysteria*. An interesting instance in point has already been recorded. Cases of the kind are easily forgotten, and yet they are of sufficiently common occurrence, and invested with enough practical interest to warrant further remark,

and to induce us to point out their natural inferences by a comparison of recent with previously remarked facts of a similar nature.

"Urged by this motive, we now reproduce M. Beau's remarks on a case at present in his wards, in which the connection between hysterical symptoms and gonorrhœa of several months' standing was distinctly perceptible. From the date of the first appearance of the disease the patient had lost flesh; her appetite declined, digestion became laborious, and the gastric dyspnœa, attended with a dry cough, set in, subsequently followed by a sensation of tightness in the throat : finally, characteristic nervous paroxysms, gradually increasing in violence and frequency, were observed, presenting the pathognomonic aspect of genuine hysteria. On inquiry, the previous existence of gonorrhœa was ascertained. Careful examination with the speculum raised all further doubt as to the presence of venereal metro-vaginitis. M. Beau at once pronounced himself satisfied that the disease of the organs of generation had been the remote cause of hysteria.

"The learned professor observed that the fact was by no means surprising. Properly speaking, hysteria is not an independent autonomous affection, but a mere appendage of disturbance of the digestive functions in a predisposed subject. Now, gonorrhœa operates in a twofold manner to produce dyspepsia : in the first place as a source of sorrow, and secondly as a cause of metro-vaginitis, which alone might well give rise to dyspeptic phenomena. When the gastric functions are involved, nutrition is imperfectly accomplished, impoverishment of the blood and anæmia follow, and the least predisposition is sufficient, in a debilitated system, to cause hysteria to appear, with its gastric and pharyngeal complications, and pathognomonic spasmodic attacks. In cases of this kind mere antispasmodic treatment is of no avail, neither will tonics or peptic medicines yield any satisfactory results, because the disease is governed by a latent cause in constant operation. It is to the removal of this cause that all the efforts of the practitioner should be directed ; and if he has the good fortune to discover and relieve it, the dyspepsia, anæmia, and hysteria will all disappear in succession.

"M. Beau's views were fully confirmed in a case formerly related. The patient had suffered from hysteria for ten or twelve months, and had received no benefit whatever from the various measures of treatment instituted by M. Briquet, who opines, with Georget, that the womb is entirely unconcerned in the production of hysteria. M. Beau, on assuming the charge of M. Briquet's wards, carefully examined the organs of generation of the patient, and discovered unmistakable signs of gonorrhœal metro-vaginitis, to the treatment of which he at once devoted his attention. By dint of perseverance the disease was at last subdued, the integrity of the gastric functions was subsequently restored, the constitution recovered its tone, and the hysteria finally yielded in its turn.

"In the case which suggests the present remark, the same results have been obtained by a similar process of induction, and we may safely assert that equally favourable consequences will be attained,

if, discarding all previously formed theory, practitioners will inquire more carefully into the true origin of the nervous disturbance in hysteria.

"If the existence of gonorrhœa is suspected, the necessity of a thorough investigation of sexual organs should be impressed on the patient. This inspection has a twofold advantage, and in addition to a knowledge of the state of the vagina, supplies information as to the presence of leucorrhœa, hypertrophy of the cervix, granulations or abrasions of the os uteri, which, more commonly than is generally supposed, gave rise to hysteria in the same manner, and the same process as gonorrhœal irritation.

"Gonorrhœa in many instances does not suggest itself to the surgeon's mind as a possible cause of hysteria, because in women the disease often assumes a deceptive aspect. It is, to use M. Beau's expression, a polymorphous affection, in the study of which we should not be guided by our knowledge of its character in the male.

"These two kinds of gonorrhœa have no other connection with each other than that of cause and effect. Gonorrhœa may be detected in the female à priori, without the use of the speculum, by a knowledge of its leading features, and more especially by the predominance of abdominal symptoms. Pain is then found to exist, spontaneous or excited by pressure, of so intense a character as to suggest the idea of circumscribed peritonitis, which doubtless might be present, but is of extremely unusual occurrence except in the puerperal state, whereas it is very common in the early stages of gonorrhœa. Sometimes severe neuralgia, or aggravated dyspepsia, usher in the affection, accompanied by loss of appetite, dyspnœa, gastric cough, vertigo, &c. These particulars must, therefore, be borne in mind, and M. Beau lays especial stress on them, because many women refrain from any allusion to a morbid condition of the organs of generation, either from a natural feeling of shame, or from actual unconsciousness of any existing local disease, which may not give rise to any obvious symptoms, or appears too insignificant to be mentioned in the same breath with other apparently much more serious morbid phenomena."

Art. 122. — *On Ovariotomy.*

By Mr. T. Spencer Wells.

(*Medical Times and Gazette*, July, 1865.)

In a paper read before the Royal Medical and Chirurgical Society, Mr. Wells had constructed a table showing at a glance the result of fifty operations; the recoveries being to the deaths in the proportion of two to one. The most favourable age for the operation appears to be before twenty-five or above forty. The conjugal conditions of the patients seem to have little effect on the result. Hospital cases have been more successful than private cases. The result of the operation depends but little on the season of the year

in which it is performed. Adhesions of the tumour to the abdominal wall and intestines are of little importance ; adhesions to the bladder, iliac vessels, ureters, or rectum are very unfavourable. A short pedicle is also very unfavourable. There is no doubt that the cases where the stump of the pedicle can be kept external to the peritoneum are much more uniformly successful than those in which the stump is allowed to sink into the abdominal cavity. Of this latter class of cases the least unfavourable are those in which the ends of the ligatures are cut off short. The size of an ovarian tumour does not of itself affect the result ; but size and solidity together, by affecting the length of the incision necessary for the removal, appear to be of some importance. A short incision is much more favourable than a long one. The probable result of ovariotomy can be estimated with far greater accuracy by a knowledge of the general condition of the patient than by the size and condition of the tumour.

Art. 123.—*On Ovariotomy and the After Treatment of the Patient.*

By Richard G. Butcher, M.R.I.A. ; Honorary M.D. of the University of Dublin ; Vice-President of the Royal College of Surgeons in Ireland ; Fellow, Licentiate, and Member of Council of that Body ; Surgeon to Mercer's Hospital, and Lecturer on Clinical Surgery ; late Chairman to the Surgical Court of Examiners.

In a paper on this subject, in which a case of an enormous bilocular ovarian tumour, and a case of an enormous semilocular ovarian tumour, both successfully operated on, are described, Mr. Butcher has the following remarks on the operation and after-treatment :—

" The case being judiciously selected, I am persuaded it is a great error to operate in an over-heated room ; the fashion being to exalt the temperature of the apartment far above the ordinary standard, or that adopted for comfort. The first case which I operated upon I brought into the theatre of the hospital, which was just of a comfortable temperature, not being varied a single degree more on this occasion than on other days for ordinary operations ; numbers of practitioners and pupils were present, and none complained of the spacious room being hot; I think it is a most important matter affecting the result of the operation that the room should be cool, and hold a large quantity of pure air in it, with full proportions of its constituents for healthily oxygenating the blood ; it should never be forgotten that the patient subjected to this operation is to be rendered insensible by chloroform, and probably maintained so for a long time ; that when brought into that room she is living on a very imperfect aëration of her blood from mechanical impediments—the

cold body surface, the feeble pulse, the livid lips, all bespeak this condition; is it then reasonable to suppose, under such conditions, that the patient can with impunity be refused a due supply of well-oxygenated air? is it to be supposed that the shock of the operation, the revival from the congestive effects of the chloroform, will not be grievously, nay, dangerously prolonged by an absence of it?

"Next comes the placing and arrangement of the patient on the operating table. The patient should be drawn down towards the end of the table, with her legs hanging over it at right angles with the thighs, and the feet suspended on a shelf drawn out from between the legs of the table, or resting upon a chair cushioned to a suitable elevation; leniency then must be ceded to the patient as to the elevation of her shoulders, neck, and head, at the same time due support must be placed beneath the loins. Now, why do I rest upon these minute particulars? Because, it must be remembered, the patient is struggling with embarrassed respiration, and particularly so when in the recumbent position. She must be allowed to seek the position that will facilitate her obtaining as full a quantity of air as possible at the same time compatible with the surgeon's task; and the necessity for doing so is further enforced, because chloroform has yet to be administered, and its influence impressed in a complicated operation, probably for a long time; from such circumstances I deprecate the practice of administering the chloroform in an adjacent room to that in which the patient is to be operated on; and then, when insensible, placing her upon the operating table, without knowing how far constrained position is compatible with her safety.

"Now as to the steps of the operation. As illustrated by the foregoing cases, an enormous tumour may be removed through a wound of not more than two and a half or three inches in extent; so the incision should not at first exceed this measurement, commencing at the point referred to below the umbilicus, in the centre of the linea alba, and carried downwards to the prescribed distance; the knife should sink to the same depth from where first laid on to the termination of the incision, and throughout its entire track it should cut through the skin, fat, superficial fascia, down to the linea alba; this structure being brought into view, its most projecting prominent part—and that will be found about the juncture of the lower with the two upper thirds of the line exposed; the fibrous bands should be lifted up with forceps, and a small opening made, the blade of the knife, horizontal to the surface, and division made sufficient to admit a director, which should be slightly curved previous to its introduction. This being well held up to the under surface of the linea alba, the knife pressed upwards along the groove of the director, effectually severs it, so then the director is turned downwards, and the part slit to the lower angle of the wound. The peritoneum next presents itself. This should be cautiously lifted up by a forceps, and the knife horizontally held to the surface, made to cut a small aperture in it, after the manner adopted in opening a hernial sac; as the linea alba was slit from one end to the superficial

wound to the other, so likewise should the peritoneal membrane be cut. Caution must be adopted in recognising the peritoneum from the ovarian cyst; for instances have been afforded where the practitioner had presumed he was down upon the cyst when in reality he was outside the peritoneum, and vigorously separating it from the abdominal walls, when he was exulting in the satisfactory way in which he broke the tender adhesions binding the tumour to surrounding structures and neighbouring organs.

" From the foregoing cases it will be seen that the colour of the cyst cannot be depended on as diagnostic of its presence. In the first case which I operated on it was of a peculiarly white colour; in the second, turgid, with blood-vessels, venous in their character, and permeating it everywhere; yet it may be relied upon that the colour of the ovarian cyst, in the large majority of cases, bears a close resemblance and analogy to the colouration first insisted on. In the superficial wound bleeding is not likely to occur; in the division of the peritoneum it is not unlikely that a branch of the epigastric may be cut, as occurred in my second operation; and if so, in either case, the vessel should be ligatured at once. The sac being fairly brought into view throughout the entire extent of the wound in the abdominal wall, the trocar, projecting from its sheath, should be thrust deep in, with decision, up to the hilt, when, the pressure from the trocar being taken off, it recedes, the fluid following it to the opening in the side of the canula, and then, through the india-rubber tube there attached, into the bucket for its reception, and placed there previous to the operation being commenced. As the fluid flows away, so the sac shows puckering and signs of collapse; then it should be seized with a vulsellum and drawn steadily through the wound, when a small portion of it escapes; pressure, by an assistant, on the abdomen above, by a constricting belt of flannel, very gently, governs its recession in the direction of the wound; and these combined forces, gradually yet determinedly enforced, will overcome many, and even extensive, surface adhesions. The giving way, the tearing up of the connecting medium will be appreciated and readily recognised by the hand and touch of the surgeon as the sac is being liberated, and the exposed sac delivered will give ocular evidence by being extensively ruffled on the surface: these two points were clearly represented in each of my two cases; therefore I would lay it down, as a rule, *that neither the hand, director, or any other foreign body, should be introduced into the wound to seek for adhesions until the attempt at its delivery be made after the manner I have just described.* I am induced to lay stress upon this point, because in the second case which I operated upon, very firm adhesions restrained the growth; yet, by determined forcible traction, they gave way in the most satisfactory manner. I am certain that this measure, if carefully put to trial, will be found effective in three-fourths of the cases that may be considered suitable for operation; if not, why, no harm has been done; and then the wound can be enlarged, the adhesions sought for and liberated, either by rupture of them by gentle tearing, division of them by the écraseur, ligaturing of them by silver wire, and then, cutting external to the

pedicle, secured. If hæmorrhage occurs after either of these mea-
sures, a touch of a heated flat cautery will restrain it; or a pledget
of lint, soaked in a saturated solution of perchloride of iron, held
for a few seconds to the weeping surface, will be effectual in restrain-
ing it. If a large vessel should yield blood it should be tied with
a thin silver-wire thread; if the sac in any one part should be found,
as it were, fused into the surface of a vital organ, it would be well
not to use any rash violence, but, when the sac was entirely emptied
of its contents, leave the adherent portion behind, and clip away the
rest; by this method no risk or serious mischief would be inflicted.
The tumour being delivered and sustained in the hands of an as-
sistant, the important question comes—that of dealing with the
pedicle. Great variety of opinion prevails on this point; and I do
not think it is to be wondered at, as the recorded experience and
testimony of many go to prove that the constituents of the pedicle
are subject to much variety in thickness, massiveness, and vascu-
larity, as, likewise, in its length—in some, being short and truncated,
in others, attaining to four or five inches. In the first case which I
operated upon the pedicle was somewhat more than two inches and
a half in length, and very thick and massive. As a temporary mea-
sure, I applied a ligature close to the root of the pedicle, and another
far away, and then, with a wedge-shaped cautery heated to the
proper temperature, cut steadily through its component parts; yet,
though the pedicle was tied pretty tightly, blood rapidly flowed—
pure, bright, arterial blood. Then the pedicle was held up to the
light, and a large artery dissected away and ligatured—that which
the cautery could not control; the remaining portion of the pedicle,
being held up to the light, was sufficiently transparent in some
places as to exhibit where the sharp instrument might be introduced,
conducting the double ligature, without the least risk of transfixion
or division of a vessel. Thus, the pedicle being divided into por-
tions, permitted the cord to effectually strangle each included part,
and so secure its certain death; for, it should be remembered, if the
part included in the ligature is too thick, the counteracting force
will not be efficient to secure its death, and after a few hours the
ligature becomes lax, and hæmorrhage may occur from some vessel
not occluded in the centre of the part embraced; the ligatures se-
curing the split pedicle, as well as that upon the large artery, were
brought out through the wound, perfectly lax, no dragging on the
pedicle, and were not cast loose for many days; yet very little dis-
charge followed in their track.

" In the second case which I have detailed the pedicle was very
short; and, though thick when taken up, yet could be spread out,
held up to the light, and made transparent in some places; and
further, even divulging the passage of the blood-vessels, large and
numerous; here the pedicle was transfixed, in a suitable position,
with a sharp-pointed eyed needle, in a handle, conveying a strong
double silk ligature; each half of the pedicle was fairly and tightly
strangled with great force; then a ligature was placed round the
pedicle, nearer to the tumour, and section made close to the double
ligature; and so the abnormal growth was severed from the body;

not a drop of blood oozed from the constricted pedicle ; in this instance both ends of each ligature were clipped close to the knots, and the constricted parts suffered to retract and be at rest. Though abscess formed in the vicinity of the pedicle, with hard firm cyst, and liberating its contents through the middle of the wound, yet these ligatures never appeared, though carefully watched for in the discharge, and all healed up within a month.

" From the first case it would follow, when the vascular supply is through large channels, the cautery cannot be depended on, and the ligature, to be effectual, must strangle the pedicle, if thick, in portions ; it might be argued, too, that the track of the ligatures externally directed secretions with safety from within. In the second case, where the pedicle was strangled in portions, and the ligatures clipped close to the knots, though a small abscess formed, yet it was obliterated, and the wound healed as rapidly as in the first case. I am convinced the surgeon who rests on one plan will not be as successful in his practice as the man who adapts his measures to the peculiarities of the case as revealed in his procedure. No doubt, if a number of small vessels pass through the pedicle for supply and distribution to the tumour, I admit the hot iron may be competent to sear up and close their divided mouths ; but I deny its power to close with security larger vessels ; it was incompetent to do so, though applied at the proper heat, slowly and cautiously, in the first of my cases ; and, on examination of the preparation lodged in the Museum of the Royal College of Surgeons, a solution of the difficulty in its doing so is at once revealed. By the ability of Dr. Barker, curator of the museum, this specimen has been prepared ; it is most beautifully injected, and distended to its full proportions ; the vessels are as large nearly as the little finger ; then, would it not be futile to depend upon cauterization here? Now, in my second case the pedicle was very short, and seemed a congeries of large vessels ; and it was with difficulty, when held up to the light, to secure a point for the sharp ligature-conducting needle to transfix with immunity ; neither in this instance do I think the cautery would have been effectually preservative ; and the vascularity of the sac—dark, turgid, and unnatural to its kind—is an evidence of the multitudinous vessels which sprung from the pedicle supply ; this beautiful preparation is also lodged in the college. I do not think the cautery should be depended on as a sufficient preservative in these cases ; it may have succeeded in instances where the vascular supply was small, and given grounds for confidence; but I must enter my protest against the practice when the vessels are large. Now, I do not wish to disparage the power of the cautery ; I use it extensively every week ; and in all those cases where the pedicle is ligatured piecemeal I would recommend the appliance of a quick brush of the cautery over the cut surface ; I have found its application in this way most serviceable after excision of the upper jaw, and other severe measures, in arresting unhealthy forms of inflammation, diffuse or erysipelatous, and arousing at once a reparative inflammation ; and it is my opinion its judicious application to the cut surface of the pedicle would be followed by a like success. I would

reiterate here, in proportion to the bulk of the pedicle it must be ligatured in two, three, or even four portions, so that each constricted part shall surely die; the little noose or knot of silk will find its own escape. Strong silver wire may be substituted as innocuous to surrounding parts. Now, as to the practice of bringing the pedicle out through the wound, and retaining it there by ligature or by clamp, no matter how well devised, it is needless to dwell upon. Any traction or straining upon the strangled part must be productive of mischief. I admit the inconveniences set up by such practices may sometimes, by prompt, judicious treatment, be stifled and subdued, and then a false impression is arrived at as to the salutary influence of the measure. If the operation is to be fairly carried out according to my views, the pedicle, when once protected from hæmorrhage, by either cautery or ligature, must be unrestrained, at rest, relaxed. As to the dressing of the wound, the mode I adopted in both the foregoing cases was the same—interrupted suture, deep and superficial, the deep stitches including the peritoneum; the deep traversed by silken cord, the superficial by silver wire; each acted admirably in sustaining together cut surface to cut surface, even almost to the perfect union of the entire extent of the wound; yet I was not satisfied with the reception of the silken cords in their long transit; small abscesses formed in the track of each, lymph boundaries fortunately limiting them; yet, though safely walled in, creating distress and a remarkable amount of discharge; in the course of the silver wires there was no hardness, no lymph walls, no discharge. I shall in all other cases treat the wound on the same principles which I have advised for that in the operation of hare-lip; the needles, of course, must be made considerably longer, firmer, and thicker; but they should be constructed in the same relative proportions, their points triangularly shaped, and the opposite extremity blunted; the same rules, too, should regulate their introduction and transfixion of the abdominal wall; in proportion to the thickness so likewise farther away from the cut surface should the needle be entered, and then made to travel, from left to right, down to the peritoneum, and then its point appearing should be made to strike the right or opposite side, at a corresponding point as to arrangement of tissues, and, being pushed onwards, it appears through the skin at a distance from the wound equal to the point of entrance; the number must be according to the length of the wound; the distance between each should not exceed three-quarters of an inch; the walls of the abdomen being so relaxed, the edges of the wound can be brought, with facility, easily in contact by gentle pressure; and then the silken cord being thrown round the needle, in the figure of eight form, will prevent the slightest retraction; each needle must have its silken cord, irrespective of the one above or below, and so all puckering of the wound and undue tension on the needles be guarded against. I am convinced this is the most rational way of dressing the wound; it secures the surfaces (even in their deepest track) throughout in contact, and it excludes from injury by puncture the peritoneum.

As to the superficial dressings — adhesive straps, tailed flannel bandages, &c., their arrangement has been already laid down.

" Now as to the after management of the patient. The sickness and vomiting which so frequently sets in after chloroform, though preceded by no food for hours before its administration, yet is sometimes very distressing ; it will be best subdued by a warm stimulant—nothing better than half a tumbler of hot brandy punch— after which hydrocyanic acid, in three-drop doses, will act as a specific. In these cases I think it is a great error to keep the patient low ; moderate stimulants and supporting nutriment—beef-tea should be given from the first in small repeated doses—cold brandy and water ; ice to suck constantly to moisten the dry mouth, so intolerable after the chloroform, and persistent from the deranged sunken condition of the patient before the operation. In addition, the temperature of the patient must be watched ; the hot jars con-stantly renewed, for as yet the shocked system and feeble low respiration have no power to generate heat ; thus the urgency of its artificial supply ; likewise, the full supply of pure oxygenated air to revivify the blood, and so impart tone to the nervous centres, is absolutely demanded. If the surgeon's work throughout the early steps of the operation be carefully and efficiently performed he has no dangers to apprehend as consequent upon them—no likelihood of hæmorrhage. The great danger which looms in the distance, even from the moment when the knife was first laid on, is inflammation— inflammation of the skin of an erysipelatous character, as I have seen from other wounds of the abdominal parietes—inflammation of the deeper tissues, of a diffuse character, as I have often witnessed— inflammation of the peritoneal membrane, as admitted and recorded to be so frequently the cause of death after this special operation. Peritonitis should be carefully watched, for here it is very insidious, owing to the low condition of the vital powers of the patient ; pres-sure over the abdomen will not afford the earliest evidence of its presence ; neither will the pulse tell ; the respiration of the patient can be made by interrogations, the best exponent ; if, on being asked to fill the chest, the patient complains of uneasiness, of pain in the wound or its vicinity, the practitioner may take the alarm ; then, if pressure be made deep around the wound, soreness will be com-plained of ; there may be no sickness of stomach to indicate this first, this early mischief ; and the pulse is no safe guide ; the pulse is quite deceptive ; and, if depended on, will lull the practitioner into false security ; once awakened, the symptoms soon unmask them-selves, and then the life of the patient is really in jeopardy. The question that suggests itself is of vital importance now ; upon the judgment and decision of the surgeon the only hope of the patient's salvation rests ; is the patient to be bled? some laud it beyond measure ; I say it increases the chances of death. Some may en-deavour to make a division of the type of inflammation here, and call that which early occurs acute, and that at a farther off period typhoid ; but this is an erroneous separation of the results of diseased action ; the early peritoneal inflammation is asthenic ; the

17—2

late form is asthenic too, and but the evidence of complication of the worst kind of blood-poisoning; in either the taking away of blood is a deprivation of a part of the life that remains. The whole reliance of the practitioner here must rest upon the power of calomel and opium — calomel in grain doses, with a grain of powdered opium, every second hour, with stimulants and nutriment; brandy and cold water every second hour to wash down the pills, and beef-tea every third hour in small cupfuls. The whole inflammatory action here is low, rapid, and destructive; therefore the imperative demand for stimulants to support the flagging powers of life until specifics have time to determine their influence.

"The second case which I have described affords a good lesson of what should be done when life is urgently threatened by this peritoneal affection; here the disease seized on the part, prostrated its victim, as if stricken with the lowest typhus; by rapid exhibition of calomel and opium, by the abundant exhibition of stimulants, the disease, after a little time, was checked, and finally arrested, not, however, until the second act of inflammatory process was accomplished, but it was arrested even now by the persistent exhibition of the calomel and opium; the exhibition of the opium was long persevered in, even in large doses, when the calomel was discontinued after its specific action had been gently established. The inflated and painful condition of the abdomen was relieved by large turpentine enemata delivered through the long tube, turpentine applied on lint over the epigastric region, and warm linseed-meal poultices over the wound and iliac regions; shortly the adhesive lymph binding the lower angle of the wound gave way, and out gushed a large quantity of pent-up, horridly offensive fluid, the result of the inflammatory mischief that threatened life; from day to day the discharge diminished, and lastly purulent matter alone came away, of a healthy character; this, too, gradually ceased, and the wound healed. I trust, in the history of these cases, I have grouped the facts so as to present them in the most attractive form; I know I have omitted nothing that could be looked on as clinical in their instruction and teaching; and I trust, as I foreshadowed in the beginning, that the glorious result obtained in both instances—the saving of life, the restoration to health—will give confidence to the vacillating and to others in the prosecution of this noble operation."

ART. 124.—*A Case of Double Uterus.*

By ROBERT JONES, Esq., Carnarvon.

(*British Medical Journal*, July, 1865.)

"A young lady, seventeen years of age, had suffered for three or four years from a dull aching pain in the back and hips; it was much increased during the catamenial periods, which were irregular,

and the discharge scanty. She was otherwise in fair health, but of delicate appearance. Her mother had died of tubercular disease of the lungs soon after her birth. The patient had been attended by several eminent physicians in London and elsewhere, as well as by myself, within the last four years; and by all her complaint was considered neuralgic, and treated with tonics and anodynes; horse-exercise having been also generally recommended. A few weeks ago, she was seen by Mr. Roberts, surgeon, of Portmadoc, who, observed her to be in great pain, with bearing-down.

"On May 11th, I saw her in consultation with Mr. Roberts; and, on examination, felt a tense elastic tumour occupying the greater part of the vagina, to within an inch of the vulva. It could be traced anteriorly, and on each side, to its reflection from the vagina; posteriorly, the finger could not reach its limits, but an elastic tube passed upwards for about six inches. It was not painful on pressure. The os uteri could not be felt. There was a distinct fulness in the right side, between the umbilicus and the hip; but little or no pain on pressure.

"We were both convinced that the contents of the tumour were fluid, and that probably it was retained menstrual discharge; and on our next visit, on the 13th, we passed an exploring trocar, when a drop of dark fluid escaped through the cannula. Mr. Roberts then divided the tense membrane with a scalpel, giving exit to at least a pint of dark thick fluid, of the consistence of treacle, having no smell. The incision caused no pain. Immediately the os uteri was felt, large, open, and turgid. The discharge continued to flow for several days afterwards; and the patient was perfectly comfortable, and free from pain. She slept well, and took a sufficient quantity of plain food. No amount of pressure caused pain, though we observed that the fulness remained on the right side.

"On May 19th, up to which time all was well, the patient began to vomit almost everything she swallowed, and also a large quantity of greenish fluid; and at the same time the discharge from the vagina, which had become very scanty, had an offensive odour. The pulse was quick; but there was no pain, heat of surface, thirst, or shivering. Ice, saline medicines, oxalate of cerium, &c., had no effect in allaying the irritability of the stomach, which continued more or less until death, which took place at 7 A.M. on the 31st.

"Autopsy, thirty hours after death. The body was very little emaciated. The abdomen was discoloured and swollen. The great omentum was highly injected, and firmly adherent to the intestines, and the latter to each other. The peritoneum lining the abdominal parietes was natural in colour, excepting that covering the diaphragm, which was injected; in the pelvis, it was very red. The abdomen contained a considerable quantity of dark offensive fluid. The pelvis was filled with dark fluid, containing large floating masses of pus. In the right hypochondriac region there appeared a large dark mass, hard and tuberculated, firmly attached to the cæcum and to the surrounding parts. On separating these attachments, the pelvic viscera were removed entire. The bladder was perfectly healthy, and contained a small quantity of urine. On slitting up the vagina,

which was much distended, the uterus was fully exposed. It was large, and presented two distinct openings. The left opening led into a cavity of the natural size of the uterus, its cervix having a well marked arbor vitæ, and at its upper part a depression showing the opening to the Fallopian tube, into which a bristle could be passed ; the ovary on that side was natural. The right opening led to a cervix enormously distended and elongated, being fully two inches in length, and as much in breadth—thick, rugous, and black on its inner surface ; and at its upper end, the internal opening led into another uterine cavity, much enlarged, but of natural form and colour, having at its upper end an opening into its Fallopian tube, large enough to admit a good sized probe, which passed easily to the fimbriated end of the tube. The right broad ligament and ovary formed the mass alluded to, which was a large sac lined internally by shining membrane, and which had burst, and discharged its contents into the pelvic cavity. Around the right opening, the remains of the tense membrane, which had been divided during life were seen. All the other organs, abdominal and thoracic, were perfectly healthy."

ART. 125.—*On Dysmenorrhœa, Metrorrhagia, Ovaritis, and Sterility Associated with a Peculiar Form of the Cervix Uteri, and the Treatment by Division.*

By Dr. ROBERT BARNES.

In a communication to the Obstetrical Society of London, Dr. Barnes, described and figured a form of cervix uteri which projected into the vagina as a conical body, the vagina appearing to be reflected off at a point nearer the os internum than normal. The os externum was usually minute, scarcely admitting the uterine sound. This (the os externum) was the real seat of constriction. The os internum normally was a narrow opening ; and in these cases of dysmenorrhœa and sterility it was commonly found to be of normal calibre. It was therefore unnecessary to divide it. It was, moreover, dangerous to divide it, on account of the close proximity of the large vessels and plexuses running into the uterus on a level with it. The author maintained that this form of cervix was a cause also of retro- and peri-uterine hæmatocele, and of peritonitis. All these consequences might arise in single women. In the married state the evils enumerated were aggravated, and new ones arose. Women with this peculiarity were generally sterile ; and if they became pregnant it was early in life, before the further consequences were developed. These were flexions, deviations, inflammation of the cervix and body, hypertrophy. Discussing the question of treatment, the author showed that dilatation was unsatisfactory ; that incision of the os internum, as practised by Dr. Simpson's single bistouri caché and by Dr. Greenhalgh's double bis-

touri caché, was unsafe and superfluous. He objected to the latter instrument, especially, that it must cut as it was set—that it was too much of an automatic machine, not leaving scope for the judgment of the operator. His (Dr. Barnes's) own instrument, constructed like a pair of scissors, acted on the same principle as Dr. Sims's : it divided only the os externum, so as to open the cavity of the cervix. The part to be cut being first seized between the two blades, the operation was perfectly free from risk. The hæmorrhage was usually slight : and a good os was made. He had performed the operation many times, both in hospital and private practice, and was well satisfied with the results. One advantage of incision over dilatation was, that it relieved the engorgement and inflammation. In illustration of the behaviour of the conical cervix uteri under labour, two cases were narrated. In one, the cervix, and the os uteri had returned to their original state, although a fœtus of four and a half or five months' development had been expelled through them. In the other case it was necessary to open the cervix artificially by means of the author's cervical dilator and incisions in order to deliver a full-grown child. In both cases pelvic cellulitis followed labour.

Art. 126.—*Treatment of Gonorrhœa in the Female.*

By John J. Black, M.D., one of the Resident Physicians to the Philadelphia Hospital, Blockley.

(*American Journal of the Medical Sciences*, July, 1865.)

The following is a *résumé* of the treatment and its results as practised by Dr. Black in one hundred and seven cases of gonorrhœa in the female during the past winter :—

"In many patients the mucous membrane of the upper part of the vagina was involved, as well as its reflections over the neck of the uterus. In no instance was there any great constitutional disturbance from implication of the pelvic viscera, although in some cases where the patients had neglected to place themselves under proper treatment at an early day, the cavity of the neck of the uterus appeared to be affected with subacute inflammation, doubtless a result of the prior trouble. All cases were examined by the speculum at the first visit, the size of which was regulated by the amount of inflammation present. Although many authorities reprobate the use of this instrument in the inflammatory state, our experience with it here is most satisfactory, as we are thus enabled to make a thorough examination and obtain a full view of the parts implicated. Using, as we do in these cases, the smallest size glass instrument, well oiled, and introduced with gentleness, it gives the patient very little inconvenience.

"In regard to the management of gonorrhœa, we acknowledge but one rational plan of treatment ; we regard it as an inflammation, and treat it as such, whether in man or in woman. If the inflam-

mation be very acute, we give antimonial mixtures, with some sopo-
rific if required ; decrease the diet, and make applications of lead-
water and laudanum, or a large flax-seed poultice over the external
genitals. At the same time we generally order injections of water,
of a temperature best suited to the feelings of the patient, medicated
with a little extract of opium, to be used every three or four hours.
This plan of conforming the temperature of all applications to
inflamed surfaces to the sensations of the patient we have found to
be of the greatest importance, especially in these cases, and pro-
ductive of the greatest benefit. Under this treatment, generally in
from twenty-four to forty-eight hours, the tumefaction and redness
subside, and the patients express themselves as much relieved. In
twenty-four hours more, the local inflammation subsiding, we com-
mence with astringents and other such remedies. Now come the
important questions : In what form shall we apply these remedies ?
Of what strength shall we use them ? And what advantage does
any one possess over another ? First, as to the form. After a short
trial of injections, we abandoned them in this stage of the disease.
Their application was more or less annoying to the patients, and if
trusted to themselves they were imperfectly applied or neglected
altogether. The application of ointments spread upon cloth we
found more efficacious than injections. The citrine or red oxide, or
comp. iodine ointments, diluted from four to seven times with lard,
were found to be among the best. Far preferable to either of the
former methods is packing the vagina with strips of patent lint
or soft cotton cloth, five inches long by two inches wide, soaked
in a solution of the required salt. We found those cases do best
where the vagina was packed moderately full, care being taken not
to interfere with the urethra. This packing was allowed to remain
twenty-four hours, and the patients appeared to suffer little or no
inconvenience. The great advantage gained by this method is the
keeping the walls of the vagina entirely separated. Of course this
dressing must always be applied by the medical attendant, and
always with the speculum. One great objection to it, as well as to
injections, is that they both more or less soil the clothes from the
contact of the remedies used ; unfortunately the best remedies
leaving the most indelible stains. In view of the objections to
these remedies, after a little thought, we were led to use vaginal
suppositories, made of some mild substance as a vehicle.

"The result has more than equalled our anticipations. The
vehicle being bland and soothing, the patient experiences no un-
pleasant sensation from the presence of the suppositories. The ease
of their application is one of their greatest recommendations, the
patient being able and willing to apply them herself; whereas they
cannot or will not apply the cloth packing so as to be productive of
any real benefit. By their use the frequent introduction of the
speculum is avoided, which is a great relief to the patient. We
have found them to be equally available for the application of
remedies to the vagina and os uteri in non-specific discharges.

"We herewith present several formulæ, which we have used very
extensively and with great satisfaction.

℞. Ol. theobromæ, ʒxij.; morphiæ sulphatis, gr. vj.; liq. ferri persulph., gtt. cxliv; cerat. adipis, ʒiijss. M. et fiant suppositoria xij.

℞. Aluminis pulv., ʒiij.; acid. tannici, ʒij.; ext. opii. gr. xij.; ol. theobromæ, ʒxij.; cerat. adipis, Ɵx. M. et fiant suppositoria xij.

℞. Ol. theobromæ, ʒxij.; ungt. iodinii comp., ʒvj; morphiæ acetatis, gr. vj. M. et fiant suppositoria xij.

℞. Ol. theobromæ, ʒxij.; morphiæ acetatis, gr. vj.; unguent. hydrarg. nitratis, ʒv. M. et fiant suppositoria xij.

℞. Ol. theobromæ, ʒxij.; morphiæ acetatis, gr. vj.; ol. copaibæ, gtt. cxliv.; cerat. adipis, ʒviiij.; acaciæ pulv. q. s. M. et fiant suppositoria xij.

The favourable action of the local application of copaiba is contrary to what has generally hitherto been reported concerning it.

℞. Ol. theobromæ, ʒij.; morphiæ acetatis, gr. vj.; liq. zinci chlor., gtt. cxx; cerat. adipis, Ɵx. M. et fiant suppositoria xij.

"We also tried the oil of turpentine by this method, but it appeared to exert no influence over the disease. Bromine was also tried, but its volatile nature prevented its use in this manner. We selected a number of cases as nearly alike as possible for this suppository treatment; all the cases being recent. The average number of days required for the cure was as follows:—Liq. ferri persulph., nine days; alum, tannic acid, &c., nine and one-half days; ol. copaibæ, twelve days; comp. iodine ointment, thirteen days; citrine ointment, fourteen days; chloride of zinc, nineteen days.

"The suppositories were not applied during the menstrual period, but that time was deducted in the average. I think they might be used during the menstrual period, and thus possess an additional advantage in not causing a suspension of treatment during that time.

"These cases were all thoroughly cured, having been examined ten days after treatment ceased, and found to be well.

"We generally ordered one suppository to be inserted every other day, having found by repeated examination that the action of each continued at least that length of time, especially those of the iron and those of the tannic acid and alum.

"Then, to sum up:—We claim for the treatment of gonorrhœa in the female by vaginal suppositories the following advantages:—

"1. Efficiency equal to, if not greater than, other remedies. 2. Cleanliness. 3. Portability. 4. Ease of application. 5. Soothing properties, while rags and the like irritate. 6. Frequent application of speculum avoided. 7. Their presence not disagreeable. 8. They can be used at all times.

"In regard to the strength of the remedies used, our experience with the suppository treatment has demonstrated that the combinations and proportions used in the accompanying formulæ are entirely satisfactory.

"As to solutions for packing the vagina, we use them chiefly of three different strengths: gr. iij. ad ʒj.; gr. v. ad ʒj.; and gr. x. ad ʒj.; and altogether obtained much the best results from the three and five grain solutions. Even if the case was old and the parts almost destitute of sensibility, we still found, in the great majority of these

cases, that the strong solutions were inferior to the weaker. Now and then we found one of those chronic cases, which we could overwhelm with a strong dose, but generally they proved irritating and rendered the patients uncomfortable for a time, whereas the milder proportions in like cases steadily and rapidly effected a cure. If we wished an immediate and positive impression, we now and then pencilled the walls of the vagina and cervix uteri lightly with solid nitrate of silver, and then kept the walls apart by inserting a strip of cotton cloth. We do not think that even this procedure had any advantages over milder and less unpleasant applications. In gonorrhœa within the cervix uteri we always use the solid stick of nitrate of silver, and with good results, as the membrane here seemed far less sensitive than that outside. Where the gonorrhœa extended into the urethra, which was rare, we generally injected a three or five grain solution of persulphate of iron or nitrate of silver with most satisfactory results. Now, in regard to the remedies used, they were numerous, and each submitted to a fair and impartial trial :—

" Persulphate of iron ; nitrate of silver ; permanganate of potassa ; sulphate of copper ; sulphate of zinc ; acetate of zinc ; tincture of iodine ; and chloride of zinc.

" We were pleased with the results from the persulphate of iron above all others, acting, as it did, as a powerful astringent and stimulant. From three to five grains to the ounce of water is the best proportion in which to use this salt. Next we preferred the nitrate of silver in the same proportion."

PART IV.—MATERIA MEDICA AND THERAPEUTICS.

Art. 127.—*On the Use of Chloroform as an Internal Remedy.*

By A. P. Merrill, M.D.

(*American Journal of the Medical Sciences*, Oct., 1865.)

Dr. Merrill has the following observations on the subject :—

" But the true value of chloroform as an internal remedy, and the changes in theory and practice to be effected by its use, must be determined by more extended observations. I have witnessed its remedial effects in a sufficient number of cases to justify me in laying the subject before the profession, and with the hope that it may become the instrument of important improvements in therapeutics. It may not be too extravagant to expect the most beneficial effects from it in the inceptive stage of all forms of congestion from any cause whatever. When arising from the influence of local irritants, as in gastric engorgement, worms, teething, &c., it must of course be expected, that the relief obtained will not be permanent without the removal of the cause. But there is good reason to believe, that even in such cases general convulsions and cerebral congestion may be suspended by full doses of chloroform, affording time and opportunity for the action of other remedies, and without which temporary relief death would be inevitable.

" Such is the power of chloroform, when taken into the stomach, over every kind of convulsive movement, and such the certainty of relief to every form of congestion, that it would appear reasonable to infer that there is a necessary connexion between the two, placing them in the relation of effect and cause. It is difficult to understand, otherwise, why in one case congestion should be relieved by the remedy, and why in another the same treatment should relieve, equally, the convulsive movement depending upon local irritation.

" Objection is sometimes made to the introduction of unmixed chloroform into the stomach, on account of its highly excitant quality. But experiment proves it to be much less stimulating to the mucous membrane than to the skin, and in no case have I observed anything more than very temporary effects upon the mouth and throat, which

soon subside. The vehicles we are advised to employ in its admini-
stration, can only hold the remedy in temporary suspension, and in
most of the cases requiring large doses it is quite impossible for the
patient to swallow them. Sometimes a single drop falling into the
folds of the neck causes vesication, while a fluid drachm passing into
the stomach gives only a slight inconvenience by its stimulation of
the mouth and throat. In the case of a child five weeks old, to whom
I gave from one to three drops mixed in breast milk, several times a
day for five successive days, the tongue became red and a little
swollen, and there was at times some difficulty in swallowing, but
these troubles soon disappeared when the medicine was suspended.

" As in the administration of other remedies, the dose of chloro-
form must be varied according to the nature of the case, and more
than with most other remedies may be the range of quantities given.
I have administered it in doses of a single drop to two fluid drachms,
and have sometimes repeated it at short intervals ; and I have reason
to believe that the cases of infantile convulsions in which I have
given from one-half to a full drachm, might have been relieved in
the inception of the disease by fifteen or twenty drops   But when
convulsions have continued for an hour or more, the smaller doses
will have no perceptible effect. Indeed, relief in such cases is
obtained only by such quantity as will produce sleep. As long as
the eyes continue wide open there is only partial success, but when
the eyelids close it may be considered evidence that the system is
well under the influence of the remedy ; and it sometimes happens
that a considerable part of the dose is eructated, in the form of
vapour, while the patient sleeps. The sleep continues from one to
four hours, and is sometimes followed by great restlessness and
actitation for an hour or more, when the patient is at ease again
and sleep returns."

Art. 128.—*Oleum Erigerontis Canadensis as a Remedy in Hemorrhage, Diarrhœa, and Dysentery.*

By J. W. Moorman, M.D., of Hardinsburg, Ky.

" This medicine," writes Dr. Moorman, " deserves to be ranked
among the best remedies in all forms of hemorrhage, and in some forms
of diarrhœa. With a somewhat extended knowledge of its effects in
such cases in private practice, I cannot call to mind a single instance
in which it failed to produce the desired effect. In cases of diarrhœa
from debility and relaxation I have found it to be a most useful
remedy, as also in dysentery, after the stomach and bowels have
been relieved by purgatives. In these cases it seems to relieve by
increasing the tonicity of the muscular fibres of the intestines, and
correcting the depraved secretions.

To better illustrate its effects, I subjoin a few cases.

Case 1.—G. T——, aged eighteen, taken suddenly, on the morning of the 19th of May, with profuse hemorrhage from the lungs. I was called ; found him with cool skin, weak pulse, and hemorrhage still very profuse. R.—Ol. erig. Canad. gtt. xv ; Aquæ com. ʒss. Ft. haust., to be taken immediately. At same time ten drops to be inhaled from handkerchief. In half-an-hour the bleeding had ceased entirely, and did not recur for several months, when it was again checked by the same remedy.

Case 2.—Mrs. D——, aged thirty-four, after a long and tedious illness with typhoid fever, was taken with hemorrhage from the bowels. I was hastily summoned about midnight, and found her in a sinking condition, having already passed several copious stools of blood. Ordered ol. erig. Canad. ʒij., to be taken at two doses, six hours apart, in an ounce of common water.

Sept. 18th (fifth day after administration). Patient has had no evacuation yet. She is clear of fever ; skin moist and cool ; pulse 90, rather weak ; complains of soreness in left iliac fossa. Ordered enema saponis, which brought away a copious stool of black-looking matter, probably the coagulated blood remaining in the bowel at the time of administration of the oil. After this the bleeding did not recur, and the patient went on to convalescence.

Case 3.—Case of typhoid fever, no symptoms of a grave character presenting themselves until the third week, when hemorrhage from the bowels suddenly set in. R.—Ol. erig. Canad. ʒjss, to be taken at two doses, four hours apart. No evacuation until the fourth day, when the administration of a simple enema brought away a copious stool of fecal matter and coagulated blood. Patient recovered.

" The last two cases may seem rather out of place, as it is thought that the hemorrhage in latter stages of typhoid fever is beneficial, and should not be checked ; but in the epidemic in which these cases occurred there were many deaths in persons apparently doing well until the hemorrhage set in. Every case of hemorrhage in which this remedy was not used proved fatal. I have tried it with equal success in menorrhagia, and in hemorrhage attending abortion, and from my experience with it, and a knowledge of the success of others, I think it deserves to be tried by the profession generally.

"The dose recommended in the *United States Dispensatory* is from five to ten drops, given every two or three hours ; but I have given much larger doses, as will be seen by reference to my cases. Such heroic doses are hardly necessary, unless in very urgent cases. Those in which I used it were already so much debilitated by long-continued disease that they were unable to stand such a large drain upon the sanguiniferous system ; these doses were resorted to to check the hemorrhage, and offered a last hope for life. It may be given in a little water, to which a small quantity of sugar may be added, if the patient desires it. In cases of hæmoptysis ten or fifteen drops may be placed on a handkerchief and inhaled, at the same time it is taken internally ; the same method will answer in epistaxis. In diarrhœa, fifteen drops every four hours, until it is relieved, will in most cases be sufficient. In dysentery it is always best to precede its use by a dose of castor-oil, to remove all irritating matter from the stomach and bowels, and even then, I must confess, I have not obtained the gratifying results which some claim

to have derived from its use in this affection. I have, however, in every case derived more or less advantage from its use. In hemorrhages and diarrhœa of debility, I know of no better remedy, and I trust the profession will give it a trial and let us know the results."

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ART. 129.—*Tinctura Iodinii Decolorata as a Therapeutic Agent.*

By N. J. AIKIN, M.D., of St. Louis, Mo.

(*American Journal of the Medical Sciences*, Oct., 1865.)

"This compound," Dr. Aikin writes, "as an efficient therapeutic agent, is worthy of more attention than it seems to have received from the profession in general. It has been conveniently called ' Colourless Iodine.' Professor Simpson was among the first to suggest its use.

" The best mode of preparing it is to mix equal parts of the comp. tinct. of iodine and strong water of ammonia. The mixture is at first brown, but after standing a few hours becomes colourless. If the colour does not disappear after twenty-four hours—which may indicate that the ingredients are at fault—add more ammonia, and, perhaps, an excess of one-fourth will be required to effect complete decoloration. When a weaker preparation is desired, it may be reduced *ad lib.* with water or glycerine. It acts on starch under some circumstances, for a slight contact with starched linen produced an instant stain ; yet upon thoroughly moistening a little powdered starch with it the blue colour did not appear. A little camphor dissolved in the tinct. will render it more agreeable to individuals, though it may add nothing to its therapeutical value.

" Whenever the external use of iodine is indicated, this can be used with advantage over any other of its preparations in the liquid form. As an alterative, absorbent, counter-irritant, or discutient, it is a neat as well as a reliable remedy.

" Applied to the forehead, face, or throat, it produces no annoying disfigurement, and, with the exception of articles of clothing that are starched, it leaves no stain on dressings or apparel. Its effects on enlarged glands are generally most satisfactory. In inflammation, where a counter-irritant is desired, as in some cases of pneumonia, it is very useful ; it is cleanly, convenient, easily applied, and the degree and rapidity of its action can be readily controlled. (As a *stupe* its direct irritant effects depend principally upon the ammonia.) It is useful in neuralgia and rheumatism, and for bruises or sprains is preferable to either the ' soap' or ' camphor' liniment. Acne, long intractable, will yield to this remedy applied several times a day, and used similarly on the first appearance of furunculur eruptions, it will generally arrest their progress, or cause them to disappear altogether. In erysipelas it is a most valuable application, if not superior to all others.

"It will readily occur, that this tincture contains no free iodine, but consists of the iodide of potassium, and the iodide of ammonium, in solution in the alcohol, with an excess of ammonia. Now a similar result may be attained by dissolving these salts in any desired menstruum, but the formula suggested is more convenient, like the following: ℞. Tinct. iodin. comp., Aq. ammon. fortior, āā ʒj. ; camphor. Ðj.—M. After the camphor is dissolved, let the mixture stand until it becomes colourless.

"This solution is absorbed with great facility. Is the iodine, to any great extent, *absorbed* when a surface is painted with the ordinary tincture or solution? The dryness and contraction of the skin which it occasions, certainly cannot favour absorption. And premising that the salts of iodine are mostly decomposed in the system, this compound presents greater claims for usefulness in the practice of the healing art.

"The correctness of the above remarks may be proved by experiment, which will also as fully demonstrate the superior advantages possessed by the colourless preparation of iodine, as an improved form for a valuable agent gratifies that spirit of progress which seeks for the best remedies in the best means and best methods."

Art. 130.—*Memorandum on the Use of Mercury.*

By James Fawcus, M.D., Bengal Medical Service.

"One of the most remarkable changes in treatment which of late years has taken place," writes Dr. Fawcus, "is the complete abandonment of mercury as a remedy by many modern practitioners, and it is interesting to consider why a medicine, which has been so highly esteemed by those of our predecessors, who possessed the most learning and insight, should now be so lightly esteemed, and even by some absolutely abhorred.

"The sketch of the history of a case which I observed lately will, I think, be of use in considering this question, and is therefore communicated with the hope that it may be of use to others who are in the habit of prescribing mercury, and be pleasing as an explanation and reconciler of contrary opinions.

"A few months ago a stout, healthy-looking German sailor, who showed no trace of scurvy, but whose teeth were dirty from accumulation of tartar, came to the General Hospital to be treated for a papular syphilitic eruption on the arms and legs. I gave him five grains of blue pill night and morning, but in a few days was obliged to discontinue it on account of salivation. Then the idea that the salivation might be due to the dirty state of his teeth, induced me to take measures to improve the conditiou of these. He was told to brush his teeth five times daily, to remove all tartar. His mouth was inspected daily, and when I considered it in a favour-

able state, the administration of mercury was recommenced. Then he took the blue pill for three weeks without any perceptible change in the state of the gums, but his breath had a slightly mercurial odour.

" The first administration of mercury produced no effect on his disease, but with the second, as soon as the mercurial odour became perceptible, the eruption rapidly disappeared.

" Of course every one is aware of the different susceptibility of individuals to the action of mercury, but I do not think it generally known that great susceptibility is often due to tartar about the teeth, and an unclean state of the mouth, and that it is exceedingly difficult to touch the gums of persons who take care of their teeth. When mercury is found to salivate rapidly, it is generally supposed that the patient suffers from Bright's disease, scurvy, scrofula, or has an idiosyncrasy, but I believe that the most frequent cause is a bad state of the teeth and gums. From considering the case above related, I am inclined to believe that the gums becoming affected is no proof that the system contains sufficient mercury for healing purposes. Mercury poisoning generally is first shown by its effect on the mouth ; it is perhaps eliminated there, and when the mouth is in a semi-inflamed state the mercury has a greater tendency to go there at once, and be eliminated without affecting the rest of the body.

" The administration of mercury is generally stopped as soon as the gums are affected, and this may be one reason why many are not satisfied with the remedy. It is quite possible that some syphilitic patients whom we see so horribly salivated may not have their system thoroughly impregnated with mercury.

" The different states as to cleanliness of the mouths of patients may also sometimes explain why mercury is sometimes given without success in pneumonia and pleuritis, and at other times with marked beneficial results."

ART. 131.—*Account of a Hindoo Medicine called " Bakus."*

By Baboo Odoy Chand Dutt, Sub-Assistant Surgeon, Gya Dispensary.

" Bakus is very common in Bengal and the Upper Provinces. It is cultivated chiefly to form hedges in gardens, &c., for which it is well suited by its showy flowers, thick foliage, and numerous complicated branches. The wood is very light and much in request for the preparation of country gunpowder. It belongs to the natural order Acanthaceæ and is called Adhatoda Vasica by botanists. It has been styled Justicia Genderussa by some. In Sanskrit it is called *Basak* and in Undoo *Aroosa*. The name by which it is known among common people, namely Bakus, is evidently a corruption from its Sanskrit designation.

"It is a bushy shrub, seldom reaching to the height of a man, with lanceolate pale green leaves from four to six inches in length. Flowers growing in spikes, each flower surrounded by three bracts, calyx with five divisions, corolla, monopetalous, irregular bilabiate; stamens two in number inserted on the corolla, disk glandular secreting a sweet liquid. Ovary two-celled with two ovules in each cell. Placenta adherent to the axis.

"In Hindoo works on medicine this plant forms a principal ingredient in several formulæ for cough, phthisis, &c. The following formula is much used by *koheerajes;* and I personally know of a few instances in which it afforded remarkable relief in cases of phthisis pulmonalis.

BASAKHUNDO.

Take of Bakus plant 12½ seers, water 64 seers. Boil to 16 seers, then add a seer of sugar and reduce to the consistence of a thick syrup. Then take of the dried pulp of *kushando,* fruit of Benincasa cerifera, 1 seer fried in *ghee* (clarified butter).

Rukta chundun.—Red sandal wood.

Talis pattro.—Leaves of Flacourtia catafracta.

Butch.—Acorus calamus.

Koor.—Patchuk root (costus speciosus?).

Fool Huritaki.—A sort of Myrobalon.

Tree koot.—A single name for a combination of long and black pepper and dry ginger.

Treefolla.—Ditto ditto for Myrobalon, Emblica Myrobalon, and Terminalia Chebula.

Tree nud.—Three sorts of sweets, viz., honey, sugar, and liquorice.

Tree jatok.—A combination of cardamums, bark of laurus, cassia, and leaves of laurus malabathrum.

Drakha.—Grapes.

Justi muddhoo.—Liquorice.

Pinda khajoor.—A sort of dates.

Each 2 tolahs in powder.

Add the above ingredients to the syrup of *Bakus* and mix intimately over the fire. Then add 6 chittacks of honey. Mix well. Dose, 8 mashas, or about 2 drachms.

"The Mussulman Hakeems also hold this plant in high estimation. Among them the following formula is a favourite prescription for phthisis and chronic bronchitis.

SHURBUT AJAZ.

Take of—

Oonale.—Zisyphus Jujuba, 20 seeds.

Sapista Kalan, 60 seeds (sebestens).

Aslasoos.—Liquorice.

Tookhur Khabaze (Dwarf Mallow seed).

Tookhur Khatmi (Marsh Mallow seed).

Gool Nelofar (Flowers of Nymphea Cyanosa).

Gool Bunufsa.—Viola odorifera.

Each 2 tolahs.

XLII.   18

Kuteera (gum tragacauth).

Sumugarlic (Khus conaria).

Each 10½ *masha*.

Rurgaroosa.—Leaves of Adhatoda Vasica, ½ seer.

Sukkhur, suffed.—White sugar, 1 seer.

Macerate all the ingredients except the sugar and the two gums kuteer and sumugarlic in 2 seers of water for 12 hours. Then boil them till the water is reduced to ½ seer. Press and strain the fluid, then add the sugar and the gums powdered, and dissolve them by aid of a gentle heat. Dose, 2 tolahs, or 6 drachms.

" Bakus has been noticed also by several European writers on Materia Medica, although, so far as I am aware, its real action and uses have not yet been pointed out by any of them. Dr. O'Shaughnessy in his *Bengal Dispensatory* notices it as follows :—' All parts of the plant are bitterish and slightly aromatic, and supposed to be antispasmodic.' Doctor Irving in his *Patna Materia Medica* gives the following remarks on its uses :—

" ' Roots used in Decoction in Colds and Fevers.' Major Drury, in his *Useful Plants of India*, says—' The flowers, leaves, root, and specially the fruit, are considered antispasmodic, and are given in cases of asthma and intermittent fever.'

" In my first trials with this medicine I selected the following formula from a Bengalee work on medicine, on account of its simplicity :—Take of the fresh juice of Bakus leaves 1 seer, sugar ¼ seer, long pepper 4 tolahs, ghee 4 tolahs. Boil them together to the consistence of thick syrup, then add a ¼ seer of honey, and boil down again to the same consistence. Dose, 8 mashas, or about 2 drachms, twice a-day. This composition proved efficacious in allaying the cough of phthisis and bronchitis, but as it was unsuited for Dispensary use from spoiling very soon, I prepared a simple extract by boiling the strained juice of the leaves to its consistence. This was administered in doses of 5 to 10 grains with considerable success, but it seemed to me that it was not equal to the syrup in rapidity of action and the degree of relief it affords ; I therefore resolved to try a combination of the extract with long pepper, and prepared it in the following way :—Take of the strained juice of Bakus leaves 1 seer, finely powdered long pepper 4 tolahs. Mix together and boil down to the consistence of an extract. This preparation appeared to act better than the simple extract, and I believe the addition of long pepper increased its efficacy. I therefore continue to use it in this form. The extract prepared as above indicated gets mouldy and loses its efficacy after about fifteen or twenty days, so that fresh quantities have to be made up every fortnight or ten days. I give it in doses of 10 grains twice or thrice daily.

" Bakus possesses no narcotic property. When taken internally it gives rise to a sense of warmth in the stomach, and in some cases promotes the appetite. In rare cases it disorders the stomach and bowels and causes loss of appetite. It allays cough, promotes the expectoration where it is scanty, and decreases it where it is abundant and troublesome. The physiological action may be described as expectorant and antispasmodic, and as exercising a specific resolvent action on the bronchial mucous membrane.

"In catarrh and slighter forms of bronchitis it acts as a specific and cures rapidly without the aid of any other medicine. In the more chronic forms of bronchitis it is useful in a certain proportion of cases. Some cases get well solely under its use, others are but little benefited by it, and the employment of the ordinary cough pills composed of squill, ipecacuanha, and opium, or some other expectorant and anodyne combination is required. On the other hand, cases are often met with which, after resisting the action of the ordinary cough pills above mentioned, yield at last to Bakus. I am not certain of the exact indications for the use of these two medicines, but in out-door practice I have often to use them both, one after the other, empirically, according to the effects produced by them. In phthisis, Bakus allays the cough and diminishes the expectoration, and sometimes it does this with great rapidity. In native medical works it is highly extolled for its efficacy in this complaint.

"In spasmodic asthma its action is more limited. It has sometimes appeared to afford great relief, but in the majority of cases it is of little use, unless there is an attendant bronchitis.

"In conclusion, I may state that, for dispensary practice, Bakus pills will be found very useful from their applicability as a routine medicine to most sorts of cough, from their freedom from narcotic and other deleterious properties, and last, though not least, from their great cheapness, the leaves being had for the trouble of gathering them in all parts of the country and seasons of the year."

ART. 132.—*On the Nutritive Value of " Extractum Carnis."*

By JUSTUS LIEBIG.

(*The Lancet*, Nov., 1865.)

The following letter was addressed to the editor of the *Lancet* by Liebig.

"I see that rather contradictory views are expressed by different English writers on the value of the Extract of Meat, some taking it to be a complete and compendious substitute for meat, whilst others assert that it has no nutritive value whatever. The truth, as is usually the case, lies in the middle; and as I was the first who entered more fully into the chemistry of meat, I may be allowed shortly to state the results of my investigations, as far as the Extractum Carnis as a nutriment is concerned.

"Meat, as it comes from the butchers, contains two different series of compounds. The first consist of the so-called *albuminous* principles (*i.e.* fibrin and albumen) and of glue-forming membranes. Of these, fibrin and albumen have a high nutritive value, although not if taken by themselves. The second series consists of crystallizable substances—viz., creatin, creatinin, sarcin, which are exclusively to be found in meat; further, of non-crystallizable organic principles

and of salts (phosphate and chloride of potassium). All of these together are called *extractives of meat*. To this second series of substances beef-tea owes its flavour and efficacy; the same being the case with Extractum Carnis, which is, in fact, nothing but solid beef-tea —that is, beef-tea from which the water has been evaporated. Besides the substances already mentioned, meat contains, as a non-essential constituent, a varying amount of fat. Now, *neither fibrin or albumen* is to be found in the Extractum Carnis which bears my name; and gelatine (glue) and fat are purposely excluded from it. In the preparation of the extract the albuminous principles are left in the residue. This residue, by the separation of all soluble principles, which are taken up in the extract, loses its nutritive power, and cannot be made an article of trade in any palatable form. Were it possible to furnish the market at a reasonable price with a preparation of meat, combining in itself the albuminous together with the extractive principles, such a preparation would have to be preferred to the Extractum Carnis, for it would contain *all* the nutritive constituents of meat. But there is, I think, no prospect of this being realized. Happily the albuminous principles wanting in the extract of meat can be replaced by identical ones derived from the vegetable kingdom *at a much lower price*. Just the reverse is the case in regard to the *extractive* matters of meat, for (their salts excepted) it is impossible to find any substitute for them. On the other hand, they may be extracted from the meat, and brought into the market in a palatable and durable form. In conjunction with albuminous principles of vegetable origin, they have the full nutritive effect of meat. From the extractive matters, then, contained in the Extractum Carnis in a concentrated form, the latter derives its value as a nutriment for the nations of Europe, provided it can be produced in large quantities and at a cheap rate, from countries where meat has no value.

" The albuminous principles of vegetable origin are principally to be found in the seeds of cereals, and the European markets are sufficiently provided with them. On the other hand, the supply of fresh meat is insufficient, and this will get worse as the population increases. For an army, for example, it will not be difficult to provide and store up the necessary amount of grain or flour. Sugar, too, as well as fatty substances and the like, will be procurable, their transport and preservation offering scarcely any difficulty. But there may easily occur a deficiency of fresh meat. Salted meat but inadequately replaces fresh meat, because in the process of salting a large quantity of the extractive principle of the meat is lost; besides, it is well known that those who live on salt meat for a continuance become subject to different diseases. Dried meat generally means tainted meat scarcely eatable. Extractum Carnis, combined with vegetable albumen, enables us to make up the deficiency: and that combination is the only one at our disposal. What was said of an army also holds good of those European nations in general that do not produce a sufficiency of meat. By making the most of the herds of South America and Australia, in using them for the preparation of Extractum Carnis, and by the importation of corn from the West

of United States and other corn-growing countries, the deficiency may be made up, although not to the full extent. For, supposing ten manufactories, producing together ten millions of pounds of extract of meat, from a million of oxen or ten millions of sheep, that whole quantity would provide the population of Great Britain only with *one pound yearly* for every *three persons*—that is, *one* pound a day for every 1100 persons.

" I have before stated, that in preparing the extract of meat, the albuminous principles remain in the residue ; they are lost for the nutrition, and this certainly is a great disadvantage. It may, however, be foreseen that industrial ingenuity will take hold of this problem and solve it, perhaps by a circuitous road. For if this residue, together with the bones of the slaughtered beasts, be applied to our fields as manure, the farmer will be enabled to produce a corresponding quantity of albuminous principles, and to better supply our towns with them, either in the shape of corn or of meat and milk. Made into a marketable state it may hereafter replace the Peruvian guano, which very soon will disappear from the market.

" On the value of extract of meat, as a medicinal substance, it is unnecessary to say a word, it being identical with beef-tea, about the usefulness and efficacy of which opinions do not differ. At the same time I may remark that it is a mistake to think that beef-tea contains any albumen—that there ought to be any gelatine or drops of fat to swim on its surface. Beef-tea does not contain any albumen and, if rightly prepared, ought to be free from gelatine (or glue), whilst the supernatant drops of fat form a non-essential and, for many, an unwelcome addition.

" I should be glad if these lines could assist in clearing up public opinion on the value of extract of meat as a nutriment : my aim being, on the one hand, to reduce to their right limit hopes too sanguine ; on the other, to point out the true share which the extract of meat can have in the nutrition of the people of Europe. In doing this, I know full well, that whatever may be said for its recommendation would be in vain, if the extract of meat did not supply a public and generally-felt necessity, and if it could not stand the test of our natural instinct—a judge not to be bribed."

Art. 133.—*Glycerine—as a Remedy, as an Adjuvant, and as a Solvent.*

By W. J. M. Gordon, Cincinnati.

(*Pharmaceutical Journal*, July, 1865.)

Glycerine, it is generally known, possesses a wonderful range of solvent properties, dissolving many substances not soluble in alcohol or water. Its agreeable taste, harmless action upon the system, and perfect assimilation with human digestion, specially adapt it when

other substances would be rejected; its sweetening property being almost equal to cane-sugar syrup, but differing from it in not being liable to fermentation; resembling oils, but, unlike oils, miscible with alcohol and water in any proportion; not volatile at ordinary tamperatures, and not becoming hard at the freezing-point of mercury. Possessing these properties, it cannot but be an article of importance both in pharmacy and in the arts.

The high price, heretofore, no doubt, has kept it from many uses to which it is now applied. Recently, glycerine, adapted to the various purposes to which it is extensively used, has been produced at a lower price than alcohol, sugar, or oil, which it has come in competition with, and which places it seems specially adapted to fill to a considerable extent; and the large amount and low price at which it can be produced, makes it worthy of attention at a time particularly when every article of utility should be carefully looked after.

Medicinally, glycerine has been used for its nutritive and alterative effect, and in some cases with marked success, being admissible when cod-liver oil and other unpleasant substances would be rejected. These and its soothing effect in coughs, are the principal internal uses to which it has been applied alone. Its more important medicinal value is as a vehicle for the preparation of a great variety of remedies for both internal and external use.

It is a favourite article in combination with the hypophosphites, known as glycerole of hypophosphites, and never disagreeing with the most delicate stomach, as sugar is liable to do, is admissible when syrup is not.

Iodide of iron prepared with it in the place of syrup makes a handsome and permanent preparation.

Its preservative and solvent property being so much greater than that of sugar syrup, cannot fail to recommend it in the place of that substance for the preparation of ipecacuanha, senega, hive syrup, and such vegetable preparations as are liable to fermentation,— specimens of several exhibited at the Pharmaceutical Congress, made with glycerine, costing 2.00 dollars per gallon, were elegant in appearance, and would, undoubtedly, remain without changing an indefinite length of time.

Its uses externally are numerous. For chapped skin and rough and excoriated surfaces, it has no equal; for sore nipples, skin diseases, ulcers of various kinds, to prevent excessive suppuration and cleanse the secreting surface.

It is highly recommended in deep abscesses with diseased bone, combined with iodine, which it dissolves. With many, it is a favourite mode of applying iodine and its salts.

It is used in cerates and ointments, which do not become rancid so soon when combined with it; as glycerole of lead, in place of Goulard's cerate, glycerine being used in the place of wax and oil; as glycerole of kino, which is said to be unchangeable; in the preparation of lactucarium in a liquid form, by which its activity and reliability are more certain; as glycerole of aloes, tar and arnica for external use. It is used with starch in the proportion of 1 oz.

of glycerine to 70 grs. of starch for making an article called "plasma," as a substitute for lard or cerate. And it no doubt possesses advantage in preparing vegetable extracts, such as belladonna, aconite, and others for external use, as they can be readily mixed with it; for liniments, in the place of oil, as it will not become rancid; and has been suggested for the extraction of the active principles of vegetable substances in place of oil and fats, to be used in the preparation of cerates or ointments.

Incorporated with vegetable extracts, it will prevent mouldiness and keep them soft, and for pill masses liable to become hard it is a good addition. It may be used as an addition to poultices to keep them soft, or any article to be kept in a moist or plastic condition.

Its solvent and preservative properties are of great importance to the pharmaceutist. In the preparation of fluid extracts, it will be found to supply the place of alcohol and sugar to much advantage. Mr. Gordon's experience is such as to convince him that in most cases extracts will be more permanent by supplying the place of alcohol, used to preserve them, with glycerine. To fluid extract of jalap, *Veratrum airide, Cinchona aromat.*, and *Iris versicolor,* glycerine was added and all the alcohol evaporated out, presenting a handsome appearance. Sarsaparilla and those liable to fermentation will be much better preserved with it.

Mr. Gordon has used glycerine as a menstruum in the preparation of extracts of cloves, nutmegs, and Ceylon cinnamon, and the preparations are elegant representatives of the substances from which they were made.

It dissolves the vegetable acids, most of the vegetable alkaloids, sulphuret of potassium, permanganate of potassa, sulphate of copper, zinc, iron, and potassa, alkaline, and some of the metallic chlorides;

Iodide of ammonium, cadmium, zinc, potassa, sodium, lime, and manganese;

Freshly precipitated carbonate of iron;

Most of the metallic oxides to some extent;

Nitrate of potassa, silver, copper, and lead;

Citrate of iron, citrate of iron and quinine, citrate of iron and strychnia, tartrate of iron and potassa;

Pyrophosphate of iron, and most saline substances.

Heating to give it greater fluidity will generally increase its solvent property.

It may not be amiss to name other purposes for which glycerine is largely used. Much the largest quantity used for any other purpose, except that of filling gas meters, is in the manufacture of hair oils, tonics, and washes, for which it is admirably fitted, taking the place of alcohol and castor oil, which are now too expensive for the purpose, and by its undrying property keeping the hair moist in appearance.

It is largely used in tobacco, and is particularly adapted to the article known as fine-cut, preserving it in a moist state an indefinite length of time; and, unlike sugar, molasses, and infusion of liquorice,

which has been used for the same purpose, it will not turn sour, and is unchanged by exposure to the air.

Wine and liquor manufacturers use it to improve liquors, by giving body and removing the fiery taste.

It is used by manufacturers of woollen goods in place of oil, being more economical and not requiring soap to wash it out.

Manufacturers of cotton goods use it in size to prevent rapid drying.

Printers use it in place of molasses to make rollers, which will not dry and shrink.

It is used by artists in clay and plaster of Paris, to preserve it in a plastic form for modelling.

It is used in soaps.

For filling wet meters, used in measuring illuminating gas, it is now extensively used, and possesses decided advantage over whisky or any substance before used for the purpose. It is practically free from any objection, not evaporating at any ordinary temperature, and can be sufficiently diluted to prevent its absorption of more water from the gas, and not liable to freeze at any degree of cold meters are subject to, and rendering them free from the attention necessary if filled with whisky or water.

It deserves attention as a lubricator for fine machinery, not congealing or being affected by exposure to the atmosphere.

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Art. 134.—On the Use of Coca Leaves.

By Dr. Abl, of Zara.

(*Pharmaceutical Journal*, July, 1865.)

" The Novara expedition," says Dr. Abl, " enables me to speak of one of the most proved narcotic substances, well qualified to become to soldiers and sailors as faithful a companion as tobacco is now.

" It is the Coca, the leaves of different varieties of *Erythroxylon Coca*, Lam., a shrub which is cultivated to a great extent in South America, especially in Brazil, Bolivia, Peru, Ecuador, Venezuela, New Granada, Guiana, as well as in the East and West Indies. These leaves have rather a good taste, and several very distinguished travellers, as Pöppig (see Sir William Hooker's ' Journal of Botany'), Weddell, Van Martius, &c., have pronounced very favourably as to the effect of chewing them. It has been proved that they show in flavour as well as in taste some analogy to the inferior kinds of tea. At the same time, they are somewhat bitter-aromatic, not inconsiderably exciting the secretion of saliva.

" But Von Tschudi and Dr. Scherzer give the most remarkable accounts of the stimulating effects of the coca.

" The former informs us that during his stay in Peru, he employed an Indian in some very fatiguing digging, for five days and five nights, and that this man did not partake of any food during the

whole time, and rested even only two hours in the night; but he constantly chewed coca leaves, consuming an ounce in every two or three hours. After the work was done, the same individual accompanied Von Tschudi during a ride of twenty-three leguas (sixty-three English miles) over elevated plains, keeping pace with his mule, and taking only a short rest for his " Chacchar" (coca-chewing). After all these hardships, he was quite willing to go through them again, without eating anything, provided he had plenty of coca.

" A similar case is reported by Dr. Scherzer (who accompanied the Novara expedition), where an Indian accomplished a journey of eighty-three leguas (243 English miles), from La Paz to Tama, in four days. After resting for one day, he set out for his return, on which he was obliged to pass a mountain of 13,000 feet in height. He actually returned on the fifth day, and during the whole journey there and back he had only taken a little roasted maize and plenty of coca. Those who once take to coca-chewing can scarcely abstain from it, and in this respect coca shows even a greater power on human habit than tobacco does.

" After all the observations lately made, a moderate use of coca does not appear to be injurious to health, and Von Tschudi even feels inclined to think the contrary. He supports his opinion by showing that many Indians attain a very great age without losing any of their mental faculties. If a moderate use were really injurious, an age of 130 years, which is often met with amongst the Indians of Peru, would seem to contradict it.

" Von Tschudi was, I think, the first to assert the fact, and Dr. Scherzer, only a few years since, also tried to show that the importation of coca leaves to Europe would very likely be accompanied with favourable results. Both propose to apply them where human strength is subjected to extraordinary hardships. Coca, in the hands of cautious captains, will very probably put a stop to the much more disgusting habit of chewing tobacco, and would certainly diminish the number of those who, after shipwreck, perish from want of food.

" Coca would prove equally useful in war, as there can be but little doubt that the unhappy results of a lost battle must very often be attributed to the exhaustion of the soldiers after a great many privations, and in not being properly provided with food.

" Although the above-mentioned remarkable effects of coca have at least been partially known in Europe for some time, it cannot be said that even a superficial chemical examination of these leaves has been made. This may be attributed to the fact that the coca, notwithstanding the immense consumption in its native country, has but very seldom been brought to Europe. A few travellers brought away small samples, to give away afterwards as curiosities for museums, &c.

" Dr. Scherzer, during the circumnavigation of the Novara, bought a good quantity of coca leaves in Lima, which were in a perfect condition, and after his return to Europe he sent them to Mr. Whöler, Professor of Chemistry in Göttingen. This gentleman trusted his assistant, Dr. A. Niemann, with the chemical analysis, referring to

its qualitative and quantitative nature; and to the careful examination of the latter, we are indebted for the cocaine, a new organic base in the coca leaves (analogous to caffeine, the operative principle in coffee, to theine, theobromine, &c.).

ART. 135.—*Liebig's Food for Infants and Invalids.*

By Dr. ARTHUR HASSALL.

(*Lancet*, July 29, 1865.)

Dr. Arthur H. Hassall has written the following interesting letter in regard to this new article of food :—

" In the preparation of this food, the two principal objects at which Liebig aimed were—first, to produce a food which should resemble human milk in the relative proportions of its heat-giving and flesh-forming constituents; and, secondly, to reduce it to the state most easy of digestion and assimilation.

" It should be clearly understood, however, that the formula given by Liebig, although it furnishes an article having about the same relative composition as human milk, is yet of twice its strength, or, to use the words of Liebig himself, it contains ' the double concentration of woman's milk;' and therefore there is reason to believe that in some cases this food will prove too rich for the infant's stomach, and will require dilution.

" It appears to me that the great merit of Leibig's preparation consists in the use of malt flour as a constituent of the food: this, from the diastase contained in it, exercises, when the fluid food or soup is properly prepared, a most remarkable influence upon the starch, quickly transforming it into dextrin and sugar, so that, in the course of a few minutes, the food, from being thick and sugarless, becomes comparatively thin and very sweet. That the action of the diastase on the starch is very considerable is amply proved by the following analysis :—

Uncooked Food.

Albuminous matter . . . . 9.25 grains per cent.*

Dried Cooked Food.

Albuminous matter	15.84 grains per cent.†
Fatty matter	8.49 ,,
Sugar of glucose	37.73 ,,
Sugar of milk	10.90 ,,
Dextrin and starch	27.04 ,,

Total 100.00

" It will be observed, by an examination of the above figures, that

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* Containing 1.43 grains of nitrogen.
† Containing 4.45 grains of nitrogen.

a very large proportion of the starch has become converted, in the course of the preparation of the food, into sugar.

" Correct and ingenious as are the principles upon which this food has been designed, yet the directions given for its preparation are certainly open to considerable improvement. Thus Liebig directs that the malt should be ground in a common coffee-mill and the coarse powder passed through a sieve. This necessitates the subsequent straining of the food—a tedious operation—in order to remove the bran and remaining particles of husk. And further, that the food should be put upon a ' gentle fire' previous to its being finally boiled. Now, a gentle heat may mean almost any temperature nearly up to the boiling-point; and, since the action of the diastase is destroyed at about 150° F., the temperature ought never to be allowed to exceed that degree.

" I recommend, therefore, that the malt should be well freed from husk and finely ground; that the wheat flour should be lightly baked; and, finally, that a thermometer should be employed in the preparation of the food. Indeed, in some samples recently submitted to me by Messrs. Savory and Moore, I find that the first two points noticed have been attended to, and that they use malt freed from husk and finely ground, and the wheat flour baked.

" The effect of baking the wheat flour is to partially cook the starch entering into its composition, so that less heat is required in the preparation of the liquid food. I find that a temperature ranging between 140° and 148° is amply sufficient to effect the complete transformation and solution of the starch-corpuscles, and, indeed, to cook the food sufficiently."

Art. 136.—Bee Bread as a Diuretic.

By Dr. Jas. S. Whitmire.

(The Chicago Medical Examiner, Sept., 1865 ; American Journal of the Medical Sciences, Oct., 1865.)

Dr. Whitmire states that he has found the bee bread* to be a most powerful diuretic. He made the discovery accidentally. Having bought a quantity of honey in the comb, he feasted liberally on it with his family for four or five weeks, and noticed that his secretion of urine was largely increased. Fearing that his kidneys were diseased, he examined for albumen without finding any, and afterwards for sugar by the taste, when the taste of bee bread was detected and its odour was also distinct. He then learned that his family were similarly affected.

To verify his suspicion as to the cause of his increased urinary secretion, he selected, he says, " some of the oldest comb that contained the greatest quantity of the bread, and separated it from the

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* The pollen of flowers collected by bees as food for their young.

honey and comb ; then, after abstaining a week from the use of my favourite sweet, and getting quite over my renal disease, as well as my unnecessary alarm, I partook of the bread, without the luxury of the honey, to the extent of ʒj three times per day, when, as I was expecting, back came the enormous secretion, but this time producing an entirely different effect upon my mind, so that I was now prepared to investigate the effects a little more at length. I continued taking ʒiij per day, for about a week, during which time I voided from four to six fluid pounds per day, the difference being the *greatest when I was at some out-door exercise. When I remained quiet*, in my warm office, there was from one to one and a half pounds less secretion than when exercising. I also repeated the same experiment on my children, and found, to my entire satisfaction, that this article possesses most valuable diuretic powers, and there seemed to be no disagreeable symptoms following its use, excepting a slight degree of flatulency and a looseness of the bowels produced, the latter of which is not, unfrequently, very desirable, particularly in dysuria, where there is irritation of the neck of the bladder and urethra, or, even in strangury, where there is absolute inflammation of the urinary passages. This, to me, is the more evident, from the enormous quantity of urine secreted, and, consequently, any irritating quality that it might contain would be so diluted as to be rendered entirely mild and inoffensive to the delicate structure of the urinary passages.

" One advantage this article has over many others of its class is, that it is entirely palatable and inoffensive to the stomach, producing no irritation or nausea of the latter organ."

Art. 137.—*Remarks on Extracts of Meat.*

By Henry B. Brady, F.L.S., &c.

(*Pharmaceutical Journal*, Oct., 1865.)

The following is the substance of some observations made by Mr. Brady at the British Pharmaceutical Conference, held at Birmingham :—

" The author stated that he should not have ventured to occupy the time of the Conference, already over-crowded with business, still less would he have intruded on the regular order of written papers, but for the concluding remarks, in the President's address, and the desire which had been expressed by several members that he should open the subject for discussion at that meeting.

" There were several forms in which the soluble extractive of meat had been used, either for general dietetic purposes, or for the convenience of the sick-room : the most important were those obtained from beef, and he would confine his remarks to them. Firstly, there were the fluid preparations represented by Gillon's 'essence of beef;' secondly, those of gelatinous consistence, of

which excellent examples were largely sold by one or two London manufacturers, to which class also belonged the so-called 'osmazôme glacée;' thirdly, the more permanent soft extractive, free from gelatine, known as 'extractum carnis, Liebig;' and fourthly, a somewhat similar article, thickened with starchy matter, and evaporated further so as to form lozenges or tablets. On each of these he would say a few words :—

"Gillon's 'essence of beef' was, he believed, exactly what the makers professed, a carefully prepared beef-juice, having many advantages over anything that had preceded it for use in the sick-room. There were, however, drawbacks in connection with it; it was insipid, variable in strength, contained a good deal of gelatine, and did not always agree with invalids; still it was a convenient and valuable basis for beef-tea, and it was fortunate that, with the present uncertain supply of other meat-extracts, there was anything so reliable to be obtained, even at a somewhat advanced price.

"Of the gelatinous preparations he had only seen the " concentrated beef-teas,' prepared by Messrs. Fortnum and Mason, and Messrs. Brand and Co. These were supplied of the consistence of firm jelly, done up in skins, each weighing half a pound to a pound. They appeared to be, essentially, extracts of beef containing gelatine, and when fresh, answered well for the preparation of beef-tea. The great objection to them was the difficulty of keeping them; in a damp place the bladders moulded on the outside, in a dry place the jelly lost water, and after a time became quite hard, and about the texture of glue, in which condition it was dissolved with great difficulty. The price, too, was against their general introduction. Recently, a material of somewhat similar character had been largely imported into France from Rio Grande, under the name of 'osmazôme glacée,' of which he regretted that he had not yet been able to procure a sample, but it appeared from all accounts, to have the worst qualities of this somewhat objectionable form of extract.

"The third substance in order, the so-called 'extractum carnis' of Liebig, might be said to have been introduced to the notice of the public in this country by a paper in the 'Popular Science Review' for April, 1865, and within a short time the article itself was offered for sale in London, in small quantities at a high price. Its recent commercial history was probably known, by dire experience, to all present—its very excellence seemed to be the likeliest cause of its failure in a commercial point of view. The demand had been excessive, the supply, hitherto, had been very limited. The process employed in its manufacture had been suggested some years ago by Baron Liebig, though it had, until recently, only been carried out on a comparatively small scale. In the Royal Pharmacy, at Munich, it was still prepared to a considerable extent, under the direction of Professor Pettenkofer, and, indeed, they had ready sale for all they could make at the somewhat high price of a florin and twelve kreutzers (a little over two shillings) per ounce. The process as settled by Liebig and Pettenkofer had been adopted in the Bavarian Pharmacopœia, and was closely followed in the laboratory at Munich. It was pretty much as follows, speaking from memory :—

" Five pounds of fresh beef cut very small and deprived of bone, tendon and fat, were digested at 212° (in a steam pan) for an hour, in ten pounds of water, and the liquor separated by strong pressure; the residue again digested in a similar way with the same quantity of water, and again subjected to pressure. The mixed liquids were evaporated to about three pounds weight, and allowed to cool; after standing, the fatty matter was skimmed off, and the evaporation continued until an extract of ordinary consistence was obtained. Ten pounds of meat should yield six ounces of extract. A specimen of extract so prepared, given him by Professor Pettenkofer during a recent visit to Munich, was on the table, and it would be found to possess, in a high degree, the qualities sought in such a preparation. The process originally devised, which depended only on heat and strong pressure for the exhaustion of the meat, had been found wasteful in practice, and had been discontinued in favour of the use of water, as in the formula given.

" The large numbers of wild and semi-wild cattle slaughtered in South America for the sake of their hides and fat, suggested an obvious source for the cheap production of such an extract, and, though long neglected, the matter had been recently taken up by Herr Giebert, a German civil engineer, resident in Uruguay. This gentleman, after consulting Baron Liebig, and receiving personal instruction in the mode of preparation from Professor Pettenkofer, had established works on a considerable scale in Uruguay, from which all the extract which had come to this country had been derived. The specimens were excellent, though it must be confessed, not quite equal in point of flavour and consistence to that prepared at Munich, but there seemed no reason why it should not become so after long experience in its manufacture. The difference between the two was chiefly attributable to faults in its preparation, which were by degrees being remedied. The *nature* of the extract obtained from the flesh of semi-wild cattle did not differ from that obtained from domesticated oxen; it was, however, singular that the *proportion* of extractive matter to flesh was greater in the latter than in the former. The flesh of wild cattle yielded about three per cent. of extract, that of domesticated oxen about three and eight-tenths per cent., or about one-fourth larger quantity.

" He should say very little on the purely chemical portion of the subject; for, though he had made a considerable number of experiments, hoping to determine some of the chemical questions which arose, he had been compelled to leave them in a half-finished condition. The extract was soluble in boiling water, about one-half soluble in alcohol, and partially soluble in cold water. It appeared to contain creatine, potash, lime, and magnesia, with phosphoric and lactic acids. The insoluble residue, after treating with cold water, appeared to be chiefly creatine and phosphate of magnesia. When examined under the microscope, the extract showed large crystals of creatine and phosphates. One very singular point in connection with it was the enormous number of bubbles of gaseous matter held in suspension; even heating the extract to the boiling-point seemed to make but little difference in this respect. Whether these were

attributable to air mechanically diffused through it by the constant stirring during its evaporation, or whether they were the results of some slow decomposition (nitrogen or carbonic acid), he was not able to say, but he was inclined to the latter belief.

"In respect to its nutritive properties, it had been disputed that the *Extractum Carnis* was equal to the amount of beef which it was supposed to represent, *i. e.* to thirty times its own weight. For a person in full health, the fibrous portion of the flesh was probably required as plastic material, or, at any rate, as a diluent for the extractive matter; but the case was far different with invalids; and, probably, no food which had been proposed was of equal value in preventing waste of the tissues during illness. Professor Pettenkofer had spoken of the extraordinary effects of a mixture of a strong solution of the extract, with wine, as a restorative after severe accidents, and of the striking statistics obtained by himself and Baron Liebig in the convalescent wards of the Royal Military Hospital at Munich, which seemed to indicate that under the free use of the extract the period of convalescence was reduced to one-third of the duration common under the old regimen. The mere quantity of phosphates and chlorides contained in the extract, upon which so much stress had been laid by some, was not enough to account for these facts. That the extractive matter was the most important nutritive portion of flesh was also shown by the circumstance that dogs fed upon the exhausted fibrine rapidly starved.

"If the *Extractum Carnis* could be procured in quantity, it seemed likely to be of incalculable value as an addition to the somewhat limited dietary of sea-going vessels on long voyages. In salted meats the potash salts were replaced by the chloride of sodium, and to this cause the prevalence of scorbutic diseases was, with fair reason, assigned; but this preparation would supply the deficiency, and thereby conduce to the health of the seamen.

"The author trusted that, at no very distant time, the present uncertainty in the supply might be obviated by the manufacture being carried on in many other parts of the globe where there was large trade in hides. Our own great colony of Australia ought not to be behind-hand in the matter; and when it was known that the comparatively valueless flesh of wild or semi-wild cattle might be turned by a simple process into a remunerative article of commerce, the supply must surely keep pace with the demand.

"Allusion was lastly made to the 'Extract of Beef Lozenges,' made by Messrs. Gillon & Co. They appeared to be the fluid essence of beef, made by the same firm, evaporated down, and sufficient starch or flour added to render them of suitable consistence for cutting into tablets. The addition of starchy material was requisite, as the continued evaporation could not be carried on without danger of decomposition, and the extract was, to some extent, hygroscopic, unless mixed with drying matter. Like the fluid preparation, the lozenges contained a good deal of gelatine, and a gluey smell and flavour was evolved on evaporating a solution of them. They could scarcely be considered of much practical importance, though their sustaining virtues had been exalted by some Alpine Club men, who had used them in long mountain journeys."

ART. 138.—*Therapeutic Effects of the Iodide of Sodium.*

By John J. Black, M.D., one of the Resident Physicians to the Philadelphia Hospital, Blockley.

At the suggestion of Professor Gross, this remedy was used in a great measure as a substitute for the iodide of potassium in the venereal wards of the Philadelphia Hospital, Blockley, during the past winter. The dose given ranged from six to ten grains, and most frequently in combination with from one-tenth to one-sixteenth of a grain of the bichloride of mercury three times a day. When giving it alone we generally preferred the following prescription :—

R.—Sodii iodidi, ℨj ; aquæ cinnamomi, fℨj. M.

Twenty-five drops of the above equal about six grains of the iodide of sodium. This form renders the remedy more portable and convenient.

Altogether it was used in forty-eight cases, and in every one the improvement was prompt, marked, and decided. In no instance were the functions of the stomach seriously disturbed, but now and then a patient complained of slight griping pains in the bowels ; but these cases were all using the medicine in combination with the bichloride of mercury. None of the patients complained of fulness about the head, dryness of the throat, or coryza. Indeed none of the unpleasant symptoms often attendant upon the administration of the iodide of potassium presented themselves in any of the cases treated. As to its efficacy, it appeared fully to deserve all the encomiums so freely bestowed upon the potassium. Cases as nearly alike as possible were placed, one on the sodium, and one on potassium, and there was no perceptible difference in the progress of each. The two iodides here mentioned are equally efficient, neither one surpassing the other in results ; but, probably, in a patient in whom the digestive powers are easily disturbed, the iodide of sodium is perhaps the remedy to be preferred.

ART. 139.—*Pepsine Wine—a New Preparation.*

By J. C. Reeve, M.D., Dayton, Ohio.

Dr. Reeve makes the following observations on this subject :—

" Pepsine itself has been for some time a standard remedy of European practice, but pepsine is the product of delicate chemical manipulation, and, so far as a remedy is concerned, cannot be obtained in this country out of the larger cities, and is unreliable when obtained. This preparation it is therefore believed will supply a

desideratum by affording a cheap and convenient mode of obtaining and administering a valuable remedy, too little used because difficult to procure.

"The medicine is easily prepared. A fresh rennet is obtained from the butcher, cut up into small pieces, and put into a pint of good sherry wine; after maceration for two weeks it may be strained off, and is ready for use. A ready test of its strength is to stir a teaspoonful into a teacupful of milk warmed to blood heat; this it should turn to the consistence of blanc-mange.

"The influence of pepsine in promoting digestion being granted or proved, the cases in which this wine will be beneficial are clearly indicated. Cases of feeble digestion depending upon debility of the stomach, this debility being either constitutional or the result of protracted and exhausting diseases, are particularly fitted for the use of the remedy. Dr. Ellis, the originator, recommends it for dyspepsia, apparently giving it without any selection of cases in regard to character or pathological conditions, and there is no doubt that it will yet take its place among the standard remedies for this obstinate and distressing complaint. He states his experience with it as having been very considerable, and his confidence in it great. He has also used it with good effect for offensive odour of the breath in young persons. In one case cod-liver oil was tolerated and digested by its aid which could not be taken before. Another physician writes to the same journal of the benefit he derived from it in obstinate attacks of gastralgia, to which he was subject.

"My own experience with the preparation extends over more than two years, and I have prescribed it pretty freely. My opportunities for using it in pure dyspepsia have not been numerous, but it has not disappointed me of affording relief in a single instance of the kind. For weak and anæmic females, with whom the stomach partakes of the general feebleness of the body, and lacks the power to digest the nutriment so much needed, I have found a teaspoonful of the pepsine wine taken after each meal a most excellent remedy. The most striking benefit I have yet seen from it in adults was the case of a young lady who came under my care in an extremely feeble and emaciated condition, the result of a severe attack of typhoid fever. So great was the weakness and irritability of her stomach that the most carefully selected and prepared food could not be borne; a single spoonful of beef-essence, given ice-cold, almost constantly produced vomiting. The usual remedies for such a condition had been exhausted without effect when I recommended half a teaspoonful of the wine after every spoonful of food. The effect was marked and striking, and the agency of the medicine proved to the satisfaction of all by attempts to intermit its use.

"But it has rendered me the most service in a class of cases which yield to none in the anxiety they cause to the physician, or the demand they sometimes make upon him for every means which he can call to his aid. I allude to cases of 'summer complaint' in children, especially chronic cases, where the little sufferer is worn down by constant discharges, the digestive organs are enfeebled, and reject the most carefully prepared food, or are unable longer to

digest enough to support the drain—a fatal termination following as much from debility and want of nourishment as from disease. Every practitioner meets with such cases; in our large cities, during the summer season, they are numerous enough—the trial of physicians and the affliction of patients. 'In such cases the debility of the stomach is kept up by the want of due nutrition of the organ, originating in its own defective function; and it has, therefore, no power of recovering its healthy condition. Artificial digestion supplies the deficient nutriment, and the stomach being now duly nourished, resumes its proper function.' In such cases I have followed every administration of food with a dose of the wine varying from ten drops to half a teaspoonful or a teaspoonful according to the age of the patient; and I can say without exaggeration, that I have seen more benefit result from its use than from all other remedies singly or combined. The vomiting has ceased, the diarrhœa become modified, apparently from supplying the system with nutriment.

"There is another class of patients often brought under the care of the physician, for whom this wine is an excellent remedy. They are not suffering so much from disease as needing assistance in a struggle for life. Infants depending wholly or in part upon artificial food for their nourishment, frequently do not thrive, and require much care on the part of the physician as well as the nurse, to bring them safely through the first two years of life. In such cases, I have derived most valuable assistance from the use of pepsine wine as an aid to digestion. During last summer I had two babes under my care, neither of which had a drop of natural nourishment, and I fully believe neither of them would have been safely brought through the perils of a hot summer, tender age, and artificial food without the aid of this wine. To the young practitioner this may seem a matter of petty detail, but as he gains a more intimate acquaintance with the responsibilities of his calling, he will find that whatever will assist him in keeping unbroken the band of little ones in a household will be far from insignificant.

"There is still another class of cases to which this remedy would seem, theoretically, well adapted, but in which I have had no opportunity of testing its powers. In the chronic diarrhœa of our army hospitals, the pathological conditions would seem so similar that I cannot doubt great benefit would result from its use. There seems to be the same demand for food rather than medicine, and the same inability of the digestive organs to prepare it for assimilation, these organs partaking of the same debility as the general system, and which is perpetuated by want of nutriment; once give power of digestion and the vicious train of morbid actions is broken and the cure almost assured."

ART. 140.—*On the Antagonism of Atropia and Morphia.*

By S. WEIR MITCHELL, M.D., WM. W. KEEN, M.D., and
GEORGE R. MOREHOUSE, M.D.

(*American Journal of the Medical Sciences*, July, 1865.)

The following are the chief results of an extended series of observations made at the U. S. Hospital for Injuries and Diseases of the Nervous System :—

" After repeated trials of conia, atropia, and daturia, with the intention of relieving pain by their subdermal use, we ceased to resort to them. On the other hand, the employment of morphia, or of some preparation of opium for subcutaneous use, became a part of the every-day routine of practice.

" Like others, we have met with certain inconveniences attendant upon this mode of employing morphia. In rare cases it always caused distressing sick stomach, but as the pain for which we used it was oft-times agonizing, the patient usually preferred to endure the sick stomach rather than fail of the delightful relief he obtained from the injection. In these instances it was commonly observed that the morphia ceased after a time to produce either nausea or emesis.

" The local annoyances resulting from injections so long continued and so numerous, were sometimes very embarrassing, for though in some men they could be used in the same limb week after week, in others the numerous punctures produced a very unpleasant increase of sensitiveness in the part. In other persons the injections gave rise to occasional abscesses, and in a soldier who was at one and the same time the subject of a very painful wound of the arm, and of a cold abscess on the back, every injection gave rise to a large indolent abscess. One instance of erysipelas following the use of an injection was seen by us.

" As the opinion of many good observers is quite decided as to the fact that the injection gives the same relief, whether made near to or remote from the seat of pain, we may with reason be asked, why we used so many injections in the same limb or neighbourhood. The answer lies in the fact that our patients very early, and we ourselves later and more reluctantly, reached the conclusion that the point at which the injection was to be employed was not a matter of indifference. In the milder instances of neuralgia a subdermal injection of morphia used anywhere in the body did give relief, but in cases of 'burning neuralgia,' the nearer we could bring the agent to the place where the pain was felt, the greater was the ease obtained. The belief thus reached is certainly not altogether unphysiological, as we very well know that morphia is capable of causing a local paralysis of sensory nerves, with which it may come in contact. . . . . .

" The experiments which we shall now relate were most of them
19—2

made upon soldiers who were suffering from painful neuralgic dis-
eases, or from some cause entailing pain.   In some cases, however,
convalescent men were the subjects of our observations, but in no
instance were they allowed to know what agents we used, or what
effects were expected.

"All of the drugs employed were injected under the skin, so that
we desire to have it most distinctly understood, that we do not ex-
tend our inferences and results to the administration of the same
drugs by the mouth.   Thus given, their rates of absorption may
vary so as to produce no inconsiderable modification of their rela-
tions to one another, although, as we very well know, their general
antagonism would remain the same.

"*Antagonism of Atropia and Morphia.*—The mass of evidence in
favour of this belief is now considerable, and has increased since
Dr. Wm. F. Norris summed it up in a very excellent paper in the
number of this journal for October, 1862.   And while the positive
evidence in this direction has gained largely, it has been shown re-
peatedly that the negative evidence derived from experiments on
animals is not to be trusted, although to it Dr. Brown-Séquard
(*Journ. de la Phys.*, Oct. 1860, p. 726) has given the sanction of
his great authority.

"Assuming therefore that there is such a peculiarity of power in
these two alkaloids as to enable them in man to neutralize one
another physiologically, as acid and alkali may do chemically, cer-
tain questions arise with which we here propose to deal.

"If it were clear that these two agents acted in some simple
direct way upon an economy equally as simple, the problem before
us would indeed be like the case of acid and alkali, and present to us
little that was confusing or difficult to comprehend.   If, on the other
hand, each of these drugs acted with equality of force, but in oppo-
site ways upon numerous organs of a complex being, the question
would even then be simplified.   But it seems to us, that although
both atropia and morphia have a wide range of influence in the body,
that they do not act opponently throughout the whole sphere of
their activity, while in some parts of it at least, there is even a cer-
tain amount of correspondence between them, or at least the appear-
ance of this. . . . . .

"*Effects of Morphia on Circulation and Respiration.*—The sub-
jects of our experiments were men free from fever.   Some were
suffering from neuralgia, and some were men in very fair health,
suspected of malingering.   The doses used were $\frac{1}{3}$ or $\frac{1}{4}$ of a grain
of sulphate of morphia in solution.   The patient was kept recum-
bent for some time before and during the observation.

"The above amounts produced no striking effects on the circula-
tion.   In two out of eighteen cases the pulse rose from 6 to 10 beats
within half an hour.   In six it did not alter materially during several
hours, and in ten it fell an average of 8 beats only.   The respiration
was as little affected.   It appears then that in persons free from
fever subdermal doses of $\frac{1}{3}$ to $\frac{1}{4}$ gr. of sulph. morphia do not con-
spicuously influence the heart or lungs.   It is proper to add that the
pulse became fuller under the morphia, and that this was at its
maximum when the general influence was greatest.

" *Effects of Atropia on the Circulation and Respiration.*—
In about one-third of our cases the pulse fell within four to ten
minutes after the injection of $\frac{1}{15}$ to $\frac{1}{30}$ of a grain. The fall did not
exceed 8 beats in any case. In the remaining cases the pulse was
unaffected for a few minutes, but in one and all there was a rapid
rise after the seventh or eighth minute—a rise which at its maximum
was rarely less than 15 beats, and in most instances 40 beats per
minute. The pulse reached its highest number within an hour in
the great mass of our cases.

" The fall was more gradual. At or about the fourth hour the
pulse was commonly beating nearly the same number as it did
when the observation began. It continued to fall, however, and
the minimum was reached at the tenth or eleventh hour. From
this period it rose again to its normal starting-point, which it at-
tained within the twenty-fourth hour.

" Shortly after we began to make these observations, Dr. J. C. Da
Costa, in charge of the wards for diseases of the heart, in Turner's-
lane Hospital, studied the influence of atropia upon the heart in a
large number of cases of soldiers affected with functional distur-
bances of that organ. He obtained results which do not differ es-
sentially from ours, except that the primary fall of the pulse was
more constantly noted. We are under the impression that we should
also have met with it more frequently if our first examination of the
pulse had always been made within the first five minutes after the
injection of the medicine.

" The force of the pulse, as well as its fulness, was notably dimi-
nished throughout the rise in its number.

" We, as well as Dr. Da Costa, were much struck with the fact that
the rate of respiration did not increase as the pulse rose. Indeed, in
many instances the number of respirations fell or remained unal-
tered, while the heart-beats ascended from 70 to 120 per minute.

" In the next series of experiments we endeavoured to learn whether,
when full doses of morphia and atropia were injected together, the
pulse would be modified so as to alter the curves which we have
drawn as expressing its changes under the use of the latter agent.

" These observations were checked by two other sets of experiments.
In one we gave a full dose of morphia subcutaneously, and when
the pupils were well contracted, or the cerebral influence clearly
marked, the atropia was employed. In the other we gave the atropia
first, and when it began to show an effect on the pulse we injected
a full dose of morphia.

" In each and all of these methods we obtained like results, the
pulse obeying the same law as when atropia alone was injected ;
in other words, behaving as though no morphia had been em-
ployed.

" It thus appears that the influence of atropia on the pulse and
respiration is in no way altered by the use of full doses of mor-
phia, so that in this particular their supposed antagonism does not
exist.

" *Effect on the Eye.*—It is needless to show anew that atropia di-
lates and morphia contracts the pupillary aperture. Our observa-

tions consisted in using injections of both drugs in succession or to-gether so as to note how they influenced the iris. Their antagonism was here very plain. When, in the case of a man whose pupils were dilated by atropia, we gave morphia, the pupil began to lessen within half an hour, and either became normal or else contracted. It was noticeable that the accommodation often remained paralyzed for an hour or more after the pupils had been relieved from the effects of the atropia.

" These observations taught us also that when neutralizing doses of the two drugs were made use of, the influence of the morphia was sure to pass away first, so that the pupils would become dilated again within five to ten hours, or unless a second dose of the morphia were given.

" It was of course found difficult to regulate the doses so that they should always neutralize one another precisely, even for a brief period, and hence it was common to see, as above stated, a condition of complete antagonism prevailing for a time only, when one or other medicine would dominate the system. As a general rule, about one-quarter of a grain of morphia will neutralize for a time one-thirtieth of a grain of atropia, but the latter acts far longer than the former.

" We may infer that these two agents counteract one another as regards their power to alter the size of the pupil and affect the ciliary muscle.

" The *effects of the two drugs upon the cerebral functions* were studied separately with care, and then in a second series of obser-vations they were used together or in succession.

" When in any particular case we found that some one of the well-known specific effects of either drug was always and markedly shown, we tested the antagonism as to this symptom by giving the other agent.

" Here, as elsewhere, the judgment is apt to be led astray by one of the drugs overlapping, so to speak, the period of the other one's activity. We feel confident, however, that the following symptoms, caused by atropia, for instance, are lessened or lost when the system is under the action of opium.

" The headache and phantasms of atropia are certainly thus con-trolled, as well as the partial deafness and visual defects, which, in high doses, it occasions. On the other hand, when morphia has been fully used, the drowsiness and stupor, which are the best tests of its power, disappear before the influence of atropia.

" In like manner, the opium pallor and the flush from atropia may be modified or dispelled. Perhaps the most peculiar cerebral symptom of atropia is its tendency to cause phantasms and illusions. We found that under doses of $\frac{1}{25}$ of a grain these were common, and in some men could always be thus brought on. Usually they were absent so long as the eyes remained open, but arose at once upon closing them. This condition was singularly subdued by morphia.

"Drowsiness caused by morphia was as surely lessened or destroyed by the counter agency of atropia ; and, in fact, atropia, given alone

in full dose, is very apt to cause a restless night to follow, so that it is assuredly in no sense a true hypnotic.

" Both morphia and atropia check the secretions from the mucous surfaces, so that in this respect they can scarcely be deemed antagonists, although the influence of atropia drying the mouth is much the more striking of the two, while it has no tendency to constipate the bowels, and even in some cases produced loose stools.

" *Nausea.*—Morphia was very apt to cause nausea when injected subcutaneously. In some men it never failed thus to affect them. When to such persons we gave the two drugs in equivalent doses— that is to say, doses which controlled the pupil, and perhaps after a time dilated it—we still found that nausea occurred as when only morphia had been employed. Here again the antagonism fails.

" *Effect upon the Bladder.*—As regards the bladder, we obtained results which very much surprised us. It is well known that morphia causes dysuria in some persons. This is apparently due to a partial and temporary loss of power to contract that viscus. That such is the cause is shown by the sluggish motion of the stream of urine which flows, when, by a great effort, the patient has succeeded in beginning to micturate.

" We find, to our surprise, that in many men injections of $\frac{1}{15}$ to $\frac{1}{30}$ grain of atropia sulphat., used subdermally, gave rise to a state of things so exactly similar, that one might have supposed it the effect of morphia. Consequently, when we selected such cases to test the antagonism of the two drugs in this particular, we were prepared to find that the dysuria was in nowise modified. Indeed, in some of these instances the symptom was so conspicuous as to give rise to the suspicion that the exhibition of the two agents together had occasioned a greater difficulty of urinating than arose from either of them when used alone.

" It thus appears that, as regards the bladder, atropia and morphia do not antagonize one another, and that there is some reason to suppose that they act alike on this organ.

" *Pain.*—The most important use of morphia in medicine is to lessen pain. Its power to do this we are naturally disposed to associate with its sleep-compelling virtues; yet, in reality, the two powers are distinct enough, although both are possessed by this potent drug. How much apart they really are may be learned by the fact which we have discovered, namely, that while atropia destroys the narcotic effect of morphia, it leaves nearly undisturbed its power to lessen or overcome pain.

" This interesting conclusion was thus reached: Several cases of intense neuralgic suffering were selected. In each of them we ascertained, by repeated trials, what dose of morphia would restore the patient to entire ease. Next, the same patients were treated with full injections of sulph. atropia, $\frac{1}{15}$ to $\frac{1}{48}$ grain, in order to see whether or not it would control the pain. How utterly wanting in this power it seems to be, we have already stated.

" The third series of observations consisted in injecting the two drugs together or in succession. Somewhat to our surprise, the

morphia still appeared to possess its full and perfect power to destroy the sensation of pain.

"These experiments were so varied and so numerous as to leave us no room to doubt the correctness of our final belief, that, as regards its anæsthetic property, morphia is not counteracted by atropia.

"It would have been easy with larger leisure than ours to have further inquired as to the effect of the two drugs upon the urine, and as to the possibility of their antagonizing one another in that direction. Enough has been done by us, we trust, to show that the question as to the physiological antagonism of atropia and morphia has not as yet been fairly answered.

"If we be correct in the views expressed in the foregoing pages, certain practical lessons of some value may be learned from them.

"If atropia lessens or destroys the unpleasant influence of morphia on the cerebrum, but does not alter its power to allay pain, there seems to be no reason why we should not use them together so as to obtain all that is best from the morphia with the least amount of after discomfort.

"We have certainly had good results from such a use of both drugs, in the form of suppositories, in cases of disease of the bladder or generative organs.

"Again, it is sometimes desirable to use either drug in very full doses. This we may do quite fearlessly when assured of our ability to restrain its action by a full exhibition of its opponent.

"The foregoing experiments and observations authorise us, we think, to draw the following conclusions as to the use of hypodermic injections, and as to the antagonism of atropia and morphia :—

"1. Conia, atropia, and daturia have no power to lessen pain when used subdermally.

"2. Morphia thus used is of the utmost value to relieve pain, and is most potent, in certain forms of neuralgia, the nearer it is applied to the seat of the suffering.

"3. Morphia lowers the pulse slightly or not at all, atropia usually lowers the pulse a few beats within ten minutes, and then raises it 20 to 50 beats within an hour. The pulse finally falls about the tenth hour below the normal number, and regains its healthy rate within twenty-four hours.

"4. Morphia has no power to prevent atropia from thus influencing the pulse, so that, as regards the circulation, they do not counteract one another.

"5. During the change of the pulse under atropia, the number of respirations is hardly altered at all.

"6. As regards the eye, the two agents in question are mutually antagonistic, but atropia continues to act for a much longer time than morphia.

"7. The cerebral symptoms caused by either drug are, to a great extent, capable of being overcome by the other, but owing to the different rates at which they move to affect the system, it is not easy to obtain a perfect balance of effects, and this is made the more difficult from the fact already mentioned, that atropia has the greater duration of toxic activity.

" 8. The dry mouth of atropia is not made less by the coincident or precedent use of morphia. Atropia does not constipate, and may even relax the bowels ; morphia has a reverse tendency.

" 9. The nausea of morphia is not antagonized or prevented by atropia.

" 10. Both agents cause dysuria in certain cases, nor is the dysuria occasioned by the one agent relieved by the other.

" 11. Atropia has no ability to alter or lessen the energy with which morphia acts to diminish sensibility or relieve the pain of neuralgic disease.

" 12. As regards toxic effects upon the cerebral organ, the two agents are mutually antidotal, but this antagonism does not prevail throughout the whole range of their influence, so that, in some respects, they do not counteract one another, while as concerns one organ, the bladder, both seem to affect it in a similar way."

REVIEWS, BIBLIOGRAPHICAL NOTICES,

ETC.

I.—*On the Diagnosis and Treatment of Cancer and the Tumours analogous to it.* By Maurice Henry Collis, M.B. Univ. Dub., F.R.C.S.I., Surgeon to the Meath Hospital and County Dublin Infirmary, &c. &c. London: John Churchill and Sons. 1864.

" If you will advance medicine," said Scarpa, " write monographs." It is, doubtless, to the influence of this laudable and excellent motive that we are indebted for the production of the present work. Recent researches — clinical observation going hand in hand with microscopical investigation—have shed considerable light on the nature of tumours ; but, in spite of the advances of modern pathology, much uncertainty still prevails on the subject, and wide diversity of opinion still exists. What is a cancer? of what is it composed? how is it to be recognised? and how is it to be treated? are questions which are constantly asked, but, to which the same answers are not always returned. Pathologically, however, one point seems to be at present generally admitted — namely, that there is no peculiar cell pathognomonic of cancer—no cancer-cell *sui generis,* as Lebert believed ; and that the cells, nuclei, and fibres which the microscope reveals in a true cancerous growth, may be all found in perfectly innocent tumours. This much can alone be said with certainty, that the more the cell-element predominates in a tumour, the greater is the probability of its belonging to the cancerous group. Of the existing diversities of opinion to which we alluded just now, there is no better illustration than the diversity of classification and nomenclature adopted by various authors. Thus, in the work now before us, we find Epithelioma and Colloid rejected from the group of cancerous growths, whilst the name of Cancroid is applied to fibro-plastic and fibroid or recurrent tumours, of the latter of which colloid growths are considered as mere varieties. The following are the characters assigned by the author to the cancroid group :—

" These tumours may be described in general terms as having a more or less globular outline, and varying degrees of elasticity ; of being slow to poison neighbouring glands ; with an almost inveterate tendency to recur, even after a free ablation ; and presenting, after removal, a dry section

with an absence of the creamy juice so characteristic of genuine cancer. They are composed of cell-elements varying in form and size, from the most elementary lymph-cell up to the nearest possible approach to the caudate variety of cancer-cell ; each tumour, however, possesses its own type of cell, the form and development of which have a direct ratio to the tendency of the tumour to recur or to poison the system, so much so as to enable a skilful observer to give a very accurate prognosis after a careful microscopic examination." (p. 163.)

His reasons for rejecting epithelioma from the group of cancerous tumours, the author enumerates thus :—

" Its superficial origin, its slow progress, its indisposition to infiltrate the deeper structure, or to contaminate the glands, the certainty of cure which follows its timely removal, and the different appearance when occupying similar localities, are of sufficient importance to outweigh the points of resemblance which it undoubtedly bears to cancer in its advanced and secondary stages. In its early stage it is strictly an hypertrophy, and in this condition it may remain for an indefinite period. Its second stage is one of hypertrophy and ulceration combined. This stage also, as far as external or cutaneous epithelioma is concerned, is slow to advance into the third and destructive stage, that of infiltration and secondary deposit." (p. 226.)

The chapters on treatment, throughout the work, are thoughtfully written, and contain a good *résumé* of the present state of knowledge on the subject, whilst the views advocated by the author are supported by details of cases in point. Special commendation is due to the publishers for the excellent manner in which the work has been brought out. A good many plates are scattered through the text, some of which are excellent indeed, and like the one representing that very rare form of cancer, the atrophic scirrhus, give a better and more vivid idea of the disease than pages of description could do. Some of the coloured lithographs are, however, too bright, we believe, to be faithful and accurate representations of nature.

II.—*Diseases of the Ovaries, their Diagnosis and Treatment.* By T. Spencer Wells, F.R.C.S., Surgeon in Ordinary to her Majesty's Household, Surgeon to the Samaritan Hospital for Women, &c. Vol. I. London. 1865. J. Churchill and Sons. 8vo., pp. 376.

This is a volume of facts solely. In it Mr. Spencer Wells relates the particulars of no less than 114 cases of ovariotomy, prefaced by a brief introduction recapitulating the principal circumstances in the history of this great operation. He points with just pride to the adoption of the operation in Australia and Ceylon, in Russia, Switzerland, Bavaria and France, also in America; whilst it has become comparatively common in private as well as public practice in the United Kingdom.

Sixteen years ago it was doubted in this country whether the

operation could be had recourse to without danger to the character of the profession. More recently ovariotomy was described in our most influential medical review, as "an operation which, though it may excite the astonishment of the vulgar, calls neither for the knowledge of the anatomist nor the skill of the surgeon," and whenever it was performed, "so fearful in its nature, often so immediately fatal in its results, a fundamental principle of medical morality is outraged."

This was largely the state of professional feeling when Mr. Spencer Wells performed, in 1857, the first of the series of operations related in this volume. With singular boldness and a full confidence in the legitimacy of his course, he repeated the operation again and again. The result has been that the objection so recently entertained to ovariotomy in this country has become almost extinct, and another triumph has been added to British surgery.

"Purposely excluding from this volume anything beyond a record of actual facts, Mr. Wells writes in the Introduction, "I must refer to the second volume for a summary of the conclusions which may be drawn from the cases now narrated. But I must just state that the results of the 114 cases of ovariotomy were 76 recoveries and 28 deaths. Perusal of the cases will show that in very many of the patients the hope of recovery could be but slender, and that very few indeed have died where the conditions, general and local, before operation, were at all favourable. Of those who recovered, four have died since—one of hemiplegia, two years after operation, and three of abdominal cancer, one ten months, one four months, and one six weeks after operation. The other seventy-two patients have regained and maintained excellent health. In one only has there been any suspicion of disease occurring on the opposite side. Five have borne children after the operation, mothers and children all having done well after easy and natural labours. As many of these seventy-two women, who are now happy and healthy wives and mothers, or single women pursuing their avocations or fulfilling the duties of their station in comfort, would long since have died if they had not been rescued by ovariotomy, or would now be lingering as miserable invalids through a life of hopeless suffering to be terminated by a painful death, the conclusion is inevitable that ovariotomy is an operation which can no longer be regarded as it was generally seven years ago, and as it is regarded even now by some few; but that it is the clear duty of the surgeon to perform it in certain cases. What those cases are—how we may judge when success may be expected with confidence, when hope and fear are equally balanced, and when failure must be almost certain—it will be my task to point out hereafter. But I cannot send forth this volume without a word of caution. A discovery which has triumphed over opposition of all kinds—honest and scientific, prejudiced and ignorant—may still be ruined by the support of rash, inconsistent, thoughtless partisans, whose failures do not reflect so much discredit on themselves as on the operation which they have badly performed in unsuitable cases. Indications are not wanting that ovariotomy has entered upon this phase of its progress; and there is reason to fear that judicious men may be influenced by the outcry of the foolish, and that a triumph of British surgery which has been won by great labour and care, may be arrested before it is complete—may even be converted into temporary defeat—by the indiscriminate support of zealous but injudicious advocates."

In the second volume of his work, Mr. Spencer Wells proposes to continue the history, and sum up the results of his experience.

III.—*Practical Anatomy: a Manual of Dissections.* By CHRISTOPHER HEATH, F.R.C.S., Assistant-Surgeon to, and Lecturer on Anatomy at, the Westminster Hospital. London, 1864: J. Churchill & Sons. Sm. 8vo., pp. 539.

This is a new member of Mr. Churchill's well-known and admirable series of manuals. It is a student's *vade-mecum* of the subject, and includes the leading facts of anatomical study which bear directly upon the practice of medicine and surgery. The halting memory is also helped by sundry artificial aids which no little experience in teaching has shown the author to be of advantage to the student. Mr. Heath has done his work well; the book is profusely illustrated with excellent wood-cuts; and it will prove a welcome addition to the student's library.

IV.—*Memorandum relating to the Disease which is now Epidemic in parts of North Germany.* By the MEDICAL OFFICER OF THE PRIVY COUNCIL. Official paper. 1865. *A Report of the Results of an Inquiry into the Epidemics of Cerebro-Spinal Meningitis prevailing about the Lower Vistula in the beginning of the present year.* By JOHN BURDON-SANDERSON, M.D., F.R.C.P. Official paper. 1865.

Cerebro-spinal meningitis is not known as an epidemic disease in England. The malady in this form has not been recognised scientifically till within the past thirty years. The following summary of the history of epidemic prevalence of the disease has been drawn up by the medical officer of the Privy Council :—

" Its epidemics are for the most part not on a large scale in any one place, numbers of them may have passed unobserved during the less advanced times of medical science ; and well-marked cases of the disease, viewed disconnectedly, may have been called by the name of some other ailment— 'fit,' 'hydrocephalus,' 'apoplexy,' 'nervous fever,' 'lock-jaw,' &c. In 1837, when its importance first began to be recognised in France, few previous epidemics of the disease were on record. But from 1837 till now, sometimes more in one country, sometimes more in another, the disease has been continually spoken of as manifesting itself in numerous small well-defined epidemic outbreaks. The apparent beginning was at Bayonne in 1837, and within the next 12 years 47 epidemics had been recorded in 36 of the then 86 departments of France. The scanty medical literature of South Italy shows that at least during the seven years 1839-45 many epidemics of the disease were occurring there. During the same and some subsequent years renewed outbreaks of the disease in Algeria were reported. Of Spain it is at least certain that, in 1844, there was a small epidemic at Gibraltar. In Denmark there were epidemics at least in the years 1845-48. In the United States of America two epidemics were observed in 1842, and, from then probably till now, epidemics have constantly been under observa-

tion in one part or another of that vast territory. In 1854 Sweden was first reported to be suffering, and within seven years had lost more than 4000 of its population by the disease. In Norway the disease has been prevailing since 1859. Germany seems almost entirely to have escaped till a very recent period ; but of late the disease has been prevailing at least in parts of Prussia, Saxony, and Hanover, and to a small extent has shown itself in Poland. Especially in the eastern parts of Prussia, well-marked epidemics have been recorded ; and it was the prevalence of such epidemics about the Lower Vistula, particularly at Dantzig and Elbing, which gave rise to the mistaken popular belief that 'plague' had spread thither from St. Petersburg. Dr. Sanderson tells me that the Medical Officer in Chief of the Circle of Dantzig reports that at least 1000 persons have died there of the disease since Christmas. Our country meanwhile has been almost entirely without experience of the disease. In 1846, and again in 1850, something of it was indeed seen very partially in Ireland, and in the former year there was a doubtful trace of it in Liverpool. It is possible too that we may have had small local outbreaks which have been unrecognised or unrecorded. But certainly the disease has not prevailed on a large scale in any part of the United Kingdom, and, practically speaking, is therefore almost unknown to the mass of our medical profession."

Not much is known of the causes of the disease. Dr. Burdon-Sanderson's investigations at Dantzic on this head gave but negative results. Broadly it is known to prevail chiefly in the colder seasons of the year. It is apt particularly to occur in crowded establishments —workhouses, prisons, and especially barracks. Over-crowding and ill-ventilation seem to exercise some important influence on the localization of the malady. Mr. Simon holds that probably the best sanitary precaution to be taken is the ventilation of dwellings.

The disease, if communicable at all from one person to another, is communicable only in a very slight degree. It is very fatal, in some of the worst epidemics the mortality having been as high as 80 per cent.

The epidemic of cerebro-spinal meningitis investigated by Dr. Sanderson was almost entirely confined to the country comprised within the Department of Dantzic (province of West Prussia) which lies between long. 18' 0" and 19' 35". The disease broke out in the beginning of February, 1864, in the town and immediate neighbourhood of Homberg. Dr. Sanderson gives a most graphic and reliable account of the progress and nature of the epidemic. The description of the disease is peculiarly interesting. The following is his summary of the symptoms :—

" In adults the disease begins almost invariably with shivering, profuse vomiting, intolerable headache, and giddiness. After these symptoms have continued several hours the patient's thoughts become confused. The headache continues, while other pains fix themselves in the muscles of the nape of the neck, of the small of the back, or of the abdominal wall. At this part of its progress the malady advances so rapidly that within a few hours after the appearance of the first symptoms the patient becomes violently delirious, while at the same time the head is thrown back, and the thighs are drawn up by muscular contraction. The delirium usually lasts for a few days only. In the worst cases the patient lapses into profound insensibility, which continues until death. In a few rare instances he regains

complete consciousness as the delirium ceases, and enters on convalescence. Much more frequently he is left on the third or fourth day of the disease, if he survive its first onset, in a state of extreme nervous depression, which is usually of long duration. This condition is characterized by impairment of consciousness, rather apparent than real, perversion both of common and special sensibility, marasmus, and excessive muscular weakness.

"During the continuance of the state of depression the patient is liable to frequent recurrence of the initial symptoms. Although so profoundly prostrate and indifferent to external impressions that he is incapable of replying to questions, he frequently utters piteous cries of pain. At night he sleeps little, usually wanders quietly, and is often subject to hallucinations. At any moment his life may be imperilled, either by secondary affections of the lungs or other vital organs, or by a recrudescence of the primary disease.

" As complete consciousness returns, and the patient resumes his relations with the external world, he may either find that in the course of the malady he has become paralysed, or that his sight or hearing are destroyed, or, on the other hand, he may be so exquisitely sensitive that light and sound are intolerable, and all other external impressions painful. Even if he escapes these consequences, he is left in a pitiable state of muscular weakness and exhaustion, from which he very slowly recovers.

"The above description is completely applicable to those cases only in which the tendency to an early fatal termination manifests itself in the violence of the symptoms of invasion. Other cases are met with in which, although the evidences of cerebral disturbance are from first to last confined to sleeplessness and night-wandering, the subsequent development of the disease is similar. In these cases, the dangers and liabilities to which the patient is exposed are as serious, and the progress as tedious and exhausting, as in the others."

Of the most characteristic symptom Dr. Sanderson writes :—

"This impairment of consciousness, whether attended with delirium or not, is accompanied, and often preceded, by that characteristic symptom, which in Germany and Sweden communicated its own designation to the disease itself (Nackenstarre, Genickkrampt, Nacksjuka, &c.). The muscles of the back of the neck become the seat of exquisite pain, and in consequence the patient, by a half voluntary effort, throws back his head, in the same way as a person affected with other forms of myalgia.

" This symptom, which occurs so frequently that it is regarded as the most distinctive characteristic of the disease, no less by scientific writers than by the vulgar, did not present itself in its acute stage in any of the cases in the excessive form in which it has been described by some physicians. No case came under my observation in which the contractions of the back of the neck were of such a character as to be correctly called tetanic. It was almost always observed that the head was thrown backwards, and that the patient complained of agonizing pain in the nape and occiput, but on placing the hand on the trapezius it was generally found that although any effort to straighten the neck was strongly resisted, and aggravated the sufferings of the patients, no tightness could be felt so long as the head was allowed to retain its retracted position.

"It was not till the neck was completely extended that the muscles became hard, and even then the hardness was not for a moment comparable with that which is felt in tetanus.

" It is of the utmost importance to notice that there were some instances of patients whom I saw early in the first stage of the disease (the day fol-

lowing the delirium), in whom I could not detect a trace of retraction of the head, or of stiffness, or anything else remarkable in the muscles. It appears to me not improbable, that if I had seen these children a day or two later, I should have found that the nape pain had developed itself, for in every instance in which I inquired of the parents of children who had recovered, or were recovering, it was stated that the symptom had existed during the first few days of the child's illness.

"As has been already stated, other muscles, particularly those of the belly and loins, and sometimes of the extremities, were affected in a similar way with those of the nape, so that pain was often complained of as vehemently in the belly and the small of the back as in the neck. The patients invariably lay on their sides, with the knees drawn up, so as to relieve the abdominal muscles, and with the face looking towards the head of the bed, and excessive pain was produced whenever the body was moved in such a way as to extend the painful muscles, and more particularly when the patient was lifted in bed."

The most characteristic *post-mortem* appearances observed in four cases examined by Dr. Burdon-Sanderson are thus described :—

"The pia mater was infiltrated with purulent exudation in each instance, but greater differences were observed as to its extent and character. It, for the most part, surrounded the larger venous trunks occupying the intergyral subarachnoid spaces over the sulci, but in case 2 it formed, in some parts, patches under the arachnoid of such extent as to conceal the convolutions. Its consistence and colour varied. In case 3, in which it was found in much smaller quantity than in the rest, it was semi-translucent and gelatinous, but in the other three it had a consistence approaching that of brain substance, and a whitish yellow colour. The pia mater could always be easily stripped from the surface of the brain without removing with it any of the grey matter.

"On the base of the brain there was also great variety in the extent of the exudation. In case 1 it extended in a thick layer from the optic commissure to the medulla, covering all the adjacent parts and enveloping the cranial nerves. In case 2 the appearances were similar, but the quantity of exudation was much less, while in cases 3 and 4 the base of the brain was entirely free, with the exception that in the latter (the case in which the exudation was most abundant on the convexities) it extended from thence into the Sylvian fissures.

"On the superior surface of the cerebellum there were patches of exudation in three of the cases. In one of them (case 3) purulent infiltration of the pia mater extended from the apex of the cerebellum along the venæ Galeni continuously to the choroid plexus.

"In two of the cases (2 and 3) the lateral ventricles contained scarcely any liquid, but in one of them, as above mentioned, the choroid plexus was soaked with pus, and a quantity of yellow pus was found in both of the posterior cornua. In two cases the ventricles contained an abnormal quantity of liquid. In case 1 the liquid was turbid, containing flaky masses of purulent exudation, and distended the ventricles very considerably, while in case 4 it was clear although stained with blood, and did not exceed one or two ounces in quantity.

"The substance of the brain was of natural consistence in cases 2 and 4, but in 1 and 3 it was unnaturally moist and yielding ; in 3 this maceration was very inconsiderable, but in 1 it was much more marked, especially in the neighbourhood of the distended ventricles. In cases 1, 2, and 3, the brain was carefully examined, and I can state confidently that there were

no circumscribed softenings of the brain substance (so called foci of ence-
phalitis).* The grey matter immediately under the pia mater was of natural
consistence, although it exhibited the products of inflammation when exa-
mined microscopically.

"The appearances observed in the spinal cord were altogether analogous
to those already described. The sheath always exhibited marked hyperæmia,
and usually felt distended to the finger. On slicing it open it was inva-
riably found that the vessels of the visceral arachnoid were swollen out with
blood, and the whole membrane minutely injected, but that no purulent or
fibrinous exudation was contained in the arachnoid sac.†

"Underneath the arachnoid there was purulent exudation in every case,
but, as in the brain, it varied both in quantity and extent. In case 1 it ex-
tended from the cervical swelling to the cauda equina, covering the cord
completely, although much more abundant posteriorly than anteriorly. In
cases 2 and 3 the cord was covered to the same extent posteriorly, but was
almost free from exudation anteriorly. In all three it was extremely abun-
dant on the cauda equina, so that in removing the cord in its sheath from
the spinal canal, a quantity of purulent liquid escaped from the cut-end of
the nerves. The exudation was partly liquid, partly concrete, the sub-
arachnoid space being occupied with purulent liquid, while the arachnoid on
its visceral aspect was lined either with a continuous layer of uneven thick-
ness, or with irregular patches of concrete pus. These layers or patches
were usually very soft, but in case 1 they were sufficiently firm to be
felt distinctly through the dura mater before it was divided. In cases 3
and 4 (so far as the imperfect manner in which the cord was examined
allowed me to judge), the anterior surface of the cord was free from
exudation. In 2, there was none on the anterior surface, except at the
lower end, while in 1, the whole surface of the arachnoid was lined with
an irregular patchy layer of exudation, showing itself in some parts merely
as opacity or thickening of the membrane. The exudation did not extend
in any case either posteriorly or anteriorly above the cervical swelling.

"The microscopical examination of the exudation gave similar results in
all the four cases. The solid or semi-solid material with which the cerebral
and spinal arachnoid was lined, was always found to consist of cell-like
bodies, either adhering to each other so closely that they could not be com-
pletely separated, or embedded in a transparent interstitial substance, while
the sero-purulent liquid which occupied the spinal sub-arachnoid space, and
in some cases the ventricles, exhibited corpuscles and granules floating
freely.

"The cell-like bodies, although in general resembling pus corpuscles, did
not present that uniformity of size and character which is met with in normal
pus. They were usually, but not always, of regular circular contour, and
varied in diameter from $\frac{1}{3500}$ to $\frac{1}{1200}$ of an inch. Occasionally they exhibited
the appearance of an external cell-membrane, but in most instances this
could not be made out even in perfectly fresh exudations, as, e.g., in those

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* In Niemeyer's cases no yellowish or reddish softenings were found
(loc. cit., p. 22), but Dr. Klebs told me that on two or three occasions he
had found in rapid cases of cerebro-spinal meningitis foci of inflammatory
softening varying in shade from straw colour to red in the centrum ovale.
In each of these cases he had also found indications of recent endocarditis ;
in more protracted cases there had been white softenings. Dr. Klebs'
observations will shortly be published.

† Dr. Klebs in one case found bands of adhesion between the opposed
surfaces of the cord and sheath.

cases which were examined as early as eight hours after death. They invariably contained numerous granules, some of which were cleared away on the addition of acetic acid. Those which remained were highly refractive, but did not assume any special form or arrangement. The interstitial substance was beset with granules, some of which were albuminous, others fatty. It was most abundant and distinct on the surface of the spinal arachnoid, where it infiltrated the fine connecting tissue and minute blood-vessels of the pia mater."

Dr. Sanderson's opportunities were too limited to enable him to form any opinion on the question of treatment; but he thinks that the complete concurrence of opinion among practitioners is sufficient to warrant the statement that, notwithstanding the generally negative results which are observed, leeching and the application of ice-cold to the spinal cord is the only mode of treatment by which the progress of the disease is likely to be arrested, and that its utility is confined to the first day, and in some instances to the first few hours after the patient has begun to vomit.

V.—*Clinical Surgery. On Tumours, and Tumours of the Breast, more particularly in Reference to their Diagnosis.* By THOMAS BRYANT, F.R.C.S., Assistant-Surgeon to Guy's Hospital. Part V. London: Churchill and Sons. 1864.

This is another of a most valuable and interesting series of monographs on clinical surgery. The author, in this as in the previous parts, shows that he has taken full advantage of the opportunities which he derives from his connexion with one of the largest metropolitan hospitals for noting and observing disease, and the manner in which he has analysed the facts which he has brought together gives great weight to the conclusions, bearing on practice, which he has drawn from them.

The present part consists of two divisions, the first devoted to the consideration of tumours in general, the second to that of tumours of the breast. Although he does not attempt minutely to enter into the pathology of new growths, and chiefly confines himself to pointing out the principal features by which one tumour may be distinguished from another, he yet introduces his subject by laying down a few leading pathological principles touching the development of tumours. These he puts in the shape of propositions, as follows :—

"1. All tumours, with the exception of the hydatid, are made up of one or more of the natural elementary tissues of the body, and in no single example has any extraneous or new element been ever detected.

"2. All tumours partake of the nature of the part in which they are developed, and are more or less made up of the elements which naturally enter into its formation.

"3. All tumours are either simple or cancerous, innocent or malignant; the simple or innocent approaching in their nature the more highly organized

natural structures of the body even to the perfect glandular ; and the malignant or cancerous simulating the most elementary or embryonic ; for, as the normal tissues were formed from a simple cell, and those of a higher grade from its development, so the cancerous element is a simple cell, or the undeveloped embryonic nucleus.

"4. Tumours never change their original nature, nor pass on nor degenerate into others of a different kind. A simple tumour is simple to the end, and a cancerous tumour is cancerous from the beginning.

"5. Simple tumours separate tissues in their growth, but never infiltrate ; cancerous, as a rule, infiltrate, and rarely separate.

"6. Simple or innocent tumours affect the patient solely through their local influence, and have no tendency to multiplication in other tissues, nor to involve the absorbents with which they are connected. Cancerous tumours not only affect the patient through their local influence, but have a marvellous tendency to multiplication in any part of the body, more particularly in the internal parts, and never exist for any period without implicating the lymphatics of the part with which they are connected."

There is an interesting class of tumour which forms a connecting link, as it were, between the simple and malignant, and which has been designated by Mr. Paget the recurring fibroid. The frequency and rapidity with which these tumours recur after removal by operation, are well exemplified in the cases cited by the author. In one, the patient, a girl of sixteen, underwent seventeen operations for removal during a period of ten years ; in another, three separate operations were performed in the space of seven years ; and in a third, four operations in eight years. There generally exists no difficulty in diagnosing a tumour of this kind from a cancerous or malignant growth, and, according to the author,—

"Even without any minute or microscopical examination of the tumour, these cases present general features which are tolerably characteristic. It must be observed that these tumours, as a rule, attack the young and healthy ; they grow from a fascia or aponeurosis, are of slow growth, particularly at first, and destroy life only after many years, and from local causes. They return only either in the spot from which they originally sprang, or from its immediate neighbourhood. They affect the part simply, mechanically, by separating and surrounding tissues, but never by infiltrating them ; the skin is only mechanically stretched over the tumour, but never involved in it ; and if destroyed, it is simply by ulceration from overdistension, while the absorbent glands are never secondarily involved, even in extreme conditions. Such tumours are to the hand more or less fibrous and lobulated, their fibrous feel being much influenced by their rapidity of growth. When cut into they present a more or less compact surface, a clear serous fluid infiltrating its meshes ; and even the finest microscopical section will be found tough and tenacious, and incapable of being pressed into a diffluent mass. Under the microscope they present the characters of the fibro-plastic tumour, although with an excess of nucleated cells and nucleated fibres, this, again, showing their tendency towards the characters of the malignant growth."

The chapter devoted to the clinical examination and diagnosis of a tumour of the breast is fully and carefully written, and any one interested in the subject will be amply repaid for his trouble in perusing it. The importance which has been attached to the presence of a retracted nipple in tumours of the breast, is well known ;

by some, even this symptom has been regarded as pathognomonic of cancer. But the author holds different views, and the arguments with which he supports them deserve consideration :—

"There can be but little doubt that the importance of this symptom of the retracted nipple has been considerably overrated, and that as a positive indication of cancerous disease it has been overestimated. It may coexist with a cancer in the breast, as it may with some simple or innocent affection ; but, on the other hand, a cancer of the organ may be present unconnected with any such morbid condition. For a retracted nipple may be described as an accidental symptom in the development of a tumour ; it is the product of mechanical causes, and its presence is determined by the manner in which the gland is involved in the disease rather than in the nature of the affection itself. Should any tumour, simple or malignant— should any abscess, chronic or acute—attack the centre of the mammary gland, a retracted nipple in all probability will be produced ; for as the disease so placed will necessarily cause material separation of the gland-ducts, their extremities—terminating in the nipple—must be drawn upon ; and, as a consequence, a retracted nipple will be the result." (p. 429.)

VI.—*The Significance of Dropsy as a Symptom in Renal, Cardiac, and Pulmonary Diseases. (Croonian Lectures for 1864.)* By W. R. BASHAM, M.D., F.R.C.P., Senior Physician to the Westminster Hospital, and Lecturer on the Principles and Practice of Medicine. London : Churchill and Sons. 1864.

Cellular pathology has of late years done good service to medicine by following up and pursuing disease, as it were, into its minutest and most secret hiding-places, and by tracing its effects on the cells of which our tissues are made up, and which the microscope alone reveals to our view. The present series of lectures, delivered before an illustrious body by an experienced physician, is a remarkable instance in point, and aptly illustrates the advantages which accrue to practical medicine from investigation into the condition of the cells of organs and tissues when altered by disease. The object of these lectures, as the author declares, is—

"To direct attention to the changes which take place in the cellular structure of particular organs and tissues, with a view to determine how far these alterations may be accepted as significant of the several diseases of which dropsy is a symptom." (p. 8.)

The great fact which the author attempts to prove, and which we believe he has succeeded in proving, is, that in dropsy, whether of renal, cardiac, or pulmonary origin, although the focus of the disease is apparently concentrated on one organ—kidneys, heart, or lungs—there is, in reality, a wide-spread degeneration, indicated by other textures being similarly affected, and by cell development in other organs being equally the seat of deterioration and decay. In dropsy, for instance, dependent on morbus Brightii, even in the acute cases—

"Which have run their fatal course in a few weeks, the epithelial cells of other parts present a granular and imperfect appearance. The epithelium of the mouth, throat, and alimentary passages is granular, and sometimes even fatty, the pavement epithelium of the bladder often most prominently so. The epithelial cells of the bronchial mucous membrane are cloudy and granular, and accompanied by evidence of cellular deterioration identical in character to what we witness in the renal tubes. Even in the most acute cases structural changes in the heart-fibre are present." (p. 16.)

But it is in chronic cases that this wide-spread degeneration becomes strikingly marked. It is interesting, then, to note its effects on the bronchial mucous membrane, the ciliated epithelium of which entirely disappears, whilst its rows of super-imposed cells are more indicative of the mucous corpuscle or effete cell than of the cells seen in healthy tissue. The layer of fibro-elastic tissue beneath the basement membrane is studded with fat granules, whilst the un-striped muscular layer is also in a fatty and degenerating condition. If there has been fluid in the abdominal cavity, the peritoneum presents an opaque aspect instead of being, as it normally is, trans-lucent and clear, smooth and shining ; its epithelial cells are cloudy and granular. The liver is involved also, for its cells are loaded with fat. Another most important organ, the heart, shares in the common degeneration :—

"The surface of the heart—the exocardium—in the majority of cases of morbus Brightii, exhibits those well-known spots called the *maculæ albidæ*, shining, opalescent and opaque patches, of which pathologists have noticed two varieties ; one variety looking like a morsel of false membrane laid on and adhering to the subjacent serous surface, with a well-defined margin, which can be raised and peeled off. These appear to be of the nature of inflammatory products, although the history of the case rarely yields any evidence of any antecedent pericardial attacks. This form is, however, infrequent as compared with the next, in which the opacity gradually merges into the surrounding tissue. There is no appearance of a raised edge, and the patch looks simply like a milky white stain.

"The tesselated epithelium of this surface is lost, and in its place nothing but a *débris* of a granular matter can be seen, interspersed with coarse inter-lacing fibres, which seem to inclose the granules together with numerous fat granules. The muscular walls of the heart are not usually unhealthy-looking to the eye, or flabby in texture. These conditions would prove nothing ; but if a careful microscopic examination of the muscular substance be made, proof may be obtained that here also is degeneration and decay. There is a universal tendency to fatty and granular degeneration." (p. 21.)

The views propounded by the author concerning the nature and origin of the tube-casts, and the source and channel whence the albumen is derived in morbus Brightii, are certainly ingenious, and deserve attention. The tube-casts—the so-called waxy or hyaline casts—the author regards " as strictly analogous to what is found formed by other epithelial surfaces having the characters of mucous membrane." He shows the identity between catarrh of renal tubes and catarrh in other mucous tissues ; and points to the analogy between fibrinous casts and the sputa of acute and capillary bronchitis ; between fibrinous blood-casts and the sputa of pneumonia ; and between oily, fatty casts and the sputa of phthisis. With regard

to the source of the albumen found in the urine, the author rejects
the explanation that it is a simple percolation of the serous elements
of the blood through the Malpighian capillaries, occasioned by ob-
structed circulation, because—

" 1st. It is too mechanical.   2ndly. So direct a drain would, it might be
supposed, have a corresponding influence in lessening the watery or serous
character of the blood in Bright's disease.   Yet the opposite is notorious ;
for the greater the albuminous drain through the kidneys, the more watery
and serous does the blood become" (p. 35).

His own opinion that the albumen in albuminous urine " is derived
as a secretion from the abortive cloudy granular cells which fill the
uriniferous tubes of all kidneys yielding albuminous urine," the
author supports chiefly by analogy to what happens in other tissues
and other diseases, and justifies it by the following experiment :—

" It is a well-known pathological fact, that the contents of all cells are
albuminous.   The pus-cell is admitted to be derived as a transitional form
from other cellular elements, and especially from epithelial elements.   Now,
if we take a number of pus-cells and act upon the cell-wall by liquor potassæ,
the wall is dissolved, and the contents of the cell set free.   If the viscid
magma thus formed be acidulated with nitric acid to neutralise the potash,
which holds the albumen in solution, upon the application of heat, or any of
the known re-agents for albumen, the presence of that substance may be
clearly demonstrated.   The inference I venture to draw from this experi-
ment is, that the breaking up of the cell-wall by liquor potassæ has liberated
the albuminous contents of the cells, while the microscope testifies to the
disruption of the other elements of the tissue." (p. 42.)

Short as they are, these lectures contain, in a small compass, a
vast deal of information conveyed in a clear and attractive style,
and will be found amply to repay, not a mere perusal only, but
careful and thoughtful study.

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VII.—*Lectures on Clinical Medicine, delivered at the Hôtel
   Dieu, Paris.*   By A. Trousseau, Professor of Clinical
   Medicine in the Faculty of Medicine, Paris; Physician
   to the Hôtel Dieu.   Translated and Edited, with Notes
   and Appendices, by P. Victor Bazire, M.D. Lond. and
   Paris, Assistant-Physician to the National Hospital for
   the Paralysed and Epileptic, Medical Registrar of the
   Westminster Hospital.   Part I.   8vo, pp. 276.   London :
   Robert Hardwicke.   1866.

No greater service could be rendered to the British practitioner
of medicine at the present time than that of placing within his
reach, in the vernacular, Professor Trousseau's great work on
clinical medicine.   The lectures embodied in the best-known
volumes of the celebrated physician of the Hôtel Dieu, have obtained
a world-wide celebrity.   Their eminently practical character, the
richness of clinical illustration, the result of half a century of obser-
vation by one of the acutest and most vigorous intellects in the

French school of medicine, and the rare fertility of resource displayed
in them, have justly earned for these lectures the foremost place in
modern works on medicine, and for the writer the reputation of
the most eminent clinical teacher of his day. To clothe his teachings
in an English garb is to render a solid benefit to practical medicine
in this country. The task could not have fallen into better hands,
or have been undertaken in a manner more calculated to ensure
success. In the original, Professor Trousseau's work forms three
bulky volumes. It has been wisely determined by the English
publisher to bring out the translation in parts at intervals, so that
the necessarily great expense of the entire work might thus be less
felt, and the book itself more completely brought within reach of
every practitioner. The eminent qualifications of the translator
and editor, Dr. Bazire, for his duties are abundantly shown in the
first part of the translation which has issued from the press. He
clearly brings to his labours a complete mastery not only of the
French and English tongue, but also, and not less of importance, a
thorough knowledge of the subjects of the lectures translated. The
former is shown by a perfection in rendering the sense of the ori-
ginal, which on the one hand, if maintained throughout the entire
work, will give to it a high place among classical works on me-
dicine; and on the other, for its closeness, will make the English
version a complete substitute for the original: while the latter is
shown by a series of valuable additions and notes, derived mainly
from the practice of the National Hospital for the Paralysed and
Epileptic, which, it is not too much to say, enriches the original, and
gives to the translation altogether a special value. Finally, the trans-
lation as represented by the first part is admirably and handsomely
printed; in these respects, indeed, exceeding the original work.

In his translation, Dr. Bazire has not followed, and we think
wisely, the order, or rather disorder, adopted by Professor Trousseau.

"As the arrangement of these lectures," writes Dr. Bazire, in a preface,
"in the French original is merely arbitrary, I have not felt bound to adopt
it in the present translation, but have selected for earlier publication those
lectures which relate to diseases that are likely to excite the most interest at
the present time. Thus, the thoroughly practical character of the first
four lectures, the immense importance of the subjects of which they treat,
the value particularly of having the question of bloodletting in apoplexy
and cerebral hæmorrhage discussed at full length by such an experienced
practitioner as Dr. Trousseau, are sufficient reasons for placing them at the
head of the list."

The subjects included in the first part are as follows :—

"I. Venesection in Cerebral Hæmorrhage and Apoplexy. II. Apo-
plectiform Cerebral Congestion, and its Relations to Epilepsy and Eclampsia.
III. Epilepsy. IV. Epileptiform Neuralgia. V. Glosso-laryngeal Para-
lysis. VI. Progressive Locomotor Ataxy. VII. Aphasia."

Glosso-laryngeal paralysis, progressive locomotor ataxy, and
aphasia, are subjects almost new to English medical literature, and
which have only recently attracted the attention of English phy-
sicians. Their interest and practical importance is so great, and

the subjects themselves so novel, that Dr. Bazire has used an excellent discretion by including them in the first part of his translation.

It remains to give some examples of the style of translation and of the sort of material to be found in this rich mine of practical medicine, as well as of the additions which the editor and translator has made to the original work.

The question of bloodletting has been very warmly discussed of late years. In no form of disease has venesection been so universally practised as in apoplexy. Formerly, when a man was struck down with an apoplectic seizure, he was immediately bled, as a matter of course. But a different mode of treatment is now generally accepted, and we have learned that bleeding from the arm is not advisable in most cases (if in any) of cerebral hæmorrhage. Professor Trousseau has been one of the warmest opponents of the former plan of treatment. It will be interesting to quote his reasons for adopting his present line of practice. He writes :—

"My reasons are these :—If I do not have recourse to bloodletting, purgatives, or revulsions in cerebral hæmorrhage, whether considerable or not, it is because experience has taught me that patients do better without them. For when I reflect on what happens then, I do not see how these methods of treatment can be of any use, since the hæmorrhage is an accomplished fact when we are called upon to note its symptoms. What influence, I ask, can be exerted on a foreign body in the shape of extravasated blood, by letting out blood from a vein of the arm or of the foot, or from the jugular, or by dividing an artery, by cupping, or leeches ? Of what use are purgatives or revulsives ? It is said that bloodletting, and that purgatives, a kind of serous bleeding, empty the vessels, and thus facilitate absorption of the extravasated blood ; that they antagonize the cerebral congestion, which, according to the practitioners who recommend them, precedes, accompanies, or follows, at the least, the extravasation of blood, and by thus preventing an exaggerated flow of liquid, they diminish the risk of the effusion becoming more considerable or occurring a second time.

"With regard to the first point, we may well doubt whether any difference obtains between cerebral hæmorrhages and other hæmorrhages, and, to take a very simple example, whether any difference exists between what takes place in cases of extravasation of blood into the cerebral substance and extravasation under the skin. In the latter case, has general or local bloodletting ever been seen to facilitate the absorption of the effused blood ? Do not most surgeons reject leeches, on the contrary, as being injurious, instead of useful ? An individual receives a blow, or falls on his head, for example, and the violent contusion produces a more or less considerable effusion of blood into the subcutaneous cellular tissue. Any medical man who may be sent for, will never think of prescribing anything more than cold lotions on the affected part, or using slight compression ; and he does so, because he knows full well that further interference would, to say the least, be superfluous. Now, can we act more powerfully on *ecchymoses* of the brain than on those of the surface of the body ? Reason, therefore, agreeing with experience, pronounces useless the treatment against which I raise my voice.

"As to the second point, namely, that bloodletting is imperatively required with a view of arresting the molimen hæmorrhagicum which caused the first symptoms, and might cause them a second time, it is indeed very

doubtful. The part played by congestion seems to me to have been very much exaggerated, and although a great many practitioners believe general or local bloodletting to be so clearly indicated that there need be no hesitation in having recourse to it, I do not think that the necessity, nay, more, the usefulness of the measure, has been clearly proved. . . . . .

" What treatment then do I adopt in cases of cerebral hæmorrhage, and more generally in apoplexy ? Instead of bleeding my patients, of putting them on low diet, and keeping them in bed, I do not draw blood from them. I recommend to them to get up if possible, at least to remain in the sitting posture, and I feed them. I am convinced that I thus obtain much more favourable results than when I interfered more actively, and that patients so treated do a great deal better than those whom I bled in former days, kept on low diet, and confined to their beds."

It is well known that Professor Trousseau's treatment of epilepsy is the administration of small doses of belladonna, or, in preference, for some years past, atropia, continued over a long time. It is remarkable that he mentions only cursorily a drug, bromide of potassium, which has been so largely and successfully used in England in this disorder. This omission has been supplied by the editor in an elaborate note including the results of the use of this drug in epilepsy derived from his own experience. Dr. Bazire treats of the physiological action of the drug both in small and large doses, and its therapeutic effects, laying down rules for its mode of administration. We subjoin the following extract :—

"The *physiological* action of the drug evidently ranks it with contra-stimulants or sedatives, for although it seems to possess a certain amount of alterative power, it is chiefly and pre-eminently a sedative of the nervous system. When given in large doses, such as thirty and forty grains two and three times a-day, it produces very striking symptoms in about ten or fifteen days. The patient at first complains of a dull headache, becomes listless and apathetic, with an expressionless face and lustreless eye. His intellect is clouded, his mind confused, and he is unable to concentrate his thoughts. There is slowness of perception, and questions have to be asked several times before their meaning is understood, and an answer can be obtained. If, when these symptoms have begun to show themselves, the medicine be continued hebetude follows, with inability to think, and a kind of stupor resembling that of the first stage of typhoid fever, together with drowsiness, somnolence, and constant dropping off to sleep. In no case have I yet seen delirium or hallucinations. The pupils are dilated, and contract very sluggishly under the influence of a strong light ; the sensibility of the conjunctiva is so deadened that a finger may be passed with impunity on the surface of the eyeball without producing winking ; hearing loses its usual acuteness, and it is only by speaking in a very loud voice that the patient can be roused from his stupor.

"The sense of taste is probably impaired like those of hearing and of sight. The tongue is moist and red at first, but after a few days it has a tendency to drying and browning. There is anæsthesia of the velum palati, the uvula and upper portion of the pharynx, so that these parts may be tickled without producing nausea or involuntary movements of deglutition. Swallowing itself, however, is not impaired, and strangely enough the appetite remains very good ; the patient takes his food well, and dozes off immediately after. Digestion seems to be easy, and the bowels, although sluggish in their action, are not very confined. There is intense thirst,

and a craving for cold drinks. The anæsthesia is not confined to the mucous membranes only, for the sensibility of the skin is diminished also, so that pinching and pricking are scarcely noticed by the patient. From the beginning, the sexual aptitude fails ; erections become rare and imperfect, and cease entirely after a few days.

"Simultaneously with the impairment of sensibility, disorders of motility manifest themselves. Thus, the patient is averse to taking exercise, sits and lounges about ; by degrees, his gait becomes altered, he rolls and staggers like a drunken man, his limbs shake and bend under him. After a time, he is obliged to keep to his bed, and when he uses his hands, as in the act of carrying anything to his mouth, they are seen to tremble, as if he were suffering from delirium tremens. The respiration is calm and tranquil, with occasional sighing ; the circulation is considerably slackened ; the pulse at the wrist is weak and slow, the heart's beat lacking in energy, and its sounds distant and feeble ; in fact, in its effect upon the heart, bromide of potassium seems to resemble digitalis. If the drug be withheld, these symptoms gradually diminish and pass off of themselves ; but they leave behind them for some time afterwards great feebleness, both physical and mental. The anæsthesia of the fauces seems to be the last phenomenon to disappear. Purgatives and the exhibition of ammonia help in restoring the patient. Dilute mineral acids seem also to be useful in rapidly dissipating these unpleasant symptoms. . . . .

"The *therapeutic* effects of bromide of potassium are manifested within a short time. It has a decided and well-marked power of checking the fits, and, short of averting them, of diminishing their severity and their duration. Under its influence, they become less frequent and severe, the intervals between them more and more prolonged, so that patients who used to have a fit every day, and sometimes several fits in the day, are free from any seizure for a week, and for two, three, four weeks, and more. This influence is extremely marked in recent cases of epilepsy, and seems to diminish in proportion as the disease has extended over a long period of years. In the first class of cases, the intervals between the paroxysms go on increasing in length, whilst in the second, the only sure effect obtained by the administration of the medicine is a diminution in the number and severity of the fits. As to the class of cases in which bromide of potassium should be given, I believe that it will be found useful in nearly all cases, not only of pure idiopathic epilepsy, but also of what has been called symptomatic epilepsy, as well as in epileptiform disorders in general. Indeed, in all these cases, whether the convulsions be dependent on the presence of a tumour, or of tubercles, or a syphilitic deposit, &c., in the brain or cerebral meninges, or whether they be due to some peculiar change in the intimate structure of the great nervous centres which we fail to detect, their immediate cause is probably some cerebro-spinal modification, of which the convulsions are only a symptomatic expression. On this condition it is, I believe, that bromide of potassium exerts its special influence ; but however that may be, an extensive trial of the drug has convinced me of its great usefulness in epilepsy proper and allied convulsive affections. When the disease is traceable to habits of masturbation, the anaphrodisiac property of the drug no doubt explains its favourable influence, and, in many instances (some of which are still under observation), where this cause was suspected to have been at work, I have known the disease kept down, as it were, for four or six months at a time, and even longer.

"In one important class of cases, bromide of potassium has failed to do much good, namely, in epileptic vertigo. Individuals suffering from a combination of convulsive fits and attacks of *petit mal*, have got rid of the first

after a prolonged use of this medicine, whereas the latter have been scarcely modified, except, perhaps, in the frequency of their recurrence and the number of actual seizures.   This is another point, however, relating to the use of this remedy, which requires further investigation."

The lecture on Progressive Locomotor Ataxy, the disease first described by Dr. Duchenne (de Boulogne), contains the best and fullest account of this remarkable malady, embodying as it does the observations of Dr. Duchenne, together with the clinical experience of the disease gained by Trousseau. As the name of this affection is derived from its most characteristic symptom—namely, the peculiar gait of the patient—the following extract, in which this is described, will be interesting :—

"If you ask an individual suffering from ataxy to walk, he staggers, makes great efforts to maintain his equilibrium, and feeling that his muscles do not respond to the influence of his will, he seeks for a point of support. It is especially at starting that this difficulty in maintaining the equilibrium of the body is remarkable.   When once started, the patient is able to walk, although he does it badly, and throws his legs about to the right and to the left.   Occasionally, he loses his equilibrium entirely and falls down, unless he be supported, especially when he turns round.   Formerly, a man whose gait was uncertain, whose legs were thrown to the right and to the left, was set down as suffering from paralysis, and if no serious impairment of the intellect were present, the disease was localized in the cord, and called paraplegia.   No physician before Dr. Duchenne (de Boulogne) ever thought of testing the muscular power of these so-called paralytic patients.   To this *savant* it was that this idea first occurred, and he it was who detected that their muscular power was considerable, and that they only lacked the faculty of co-ordinating their movements.   You have yourselves examined my patients in St. Agnes ward, who are suffering from locomotor ataxy. The one in bed No. 2 is a young man whose muscular power is so great that his limbs cannot be flexed or stretched against his will.   Although his gait be so vacillating, he is strong enough to bear on his shoulders, when standing, a weight of 160 lbs., on condition, however, that he may rest on a friend's arm, or on a piece of furniture ; and I showed you that he could carry on his shoulders several students in succession.   Surely this is not muscular weakness, and still less paralysis. . . . . . .
"The gait of an ataxic patient is something like this.   At the outset of the complaint he staggers a little, especially as he gets up after having sat down for a long time.   He rests on a stick or on the chair which he has just left, and he starts.   As he takes the first step, the arm which does not rest on the stick leaves his side and oscillates like that of a rope-dancer, and his body inclines a little forwards.   His walk is at first slow and uncertain, but becomes involuntarily hurried.   Whereas in true paralysis the leg is slowly lifted off the ground and is dragged along ; in ataxy, the foot is thrust forward in variable directions, and comes down suddenly.   Instead of the measured flexion of the knee-joint, which obtains normally, the flexion is sudden, and followed by forcible extension.
"When the disease is in a more advanced stage, if the patient does not rest on a stick, he throws his legs about with still greater disorder, and the inequality of his steps renders the loss of equilibrium still more imminent. Both his arms are then moved about like that of a rope-dancer, and his trunk itself is inclined or straightened according to the displacement of his centre of gravity."

The editor appends to this lecture an interesting series of cases, carefully observed and reported by himself, of progressive locomotor ataxy, with observations.

There is another peculiar affection, which Dr. Duchenne (de Boulogne) has been the first to point out, fully described in this part—namely, glosso-laryngeal paralysis. This disease is scarcely known in this country.

The lecture on *Aphasia* is a model of clinical teaching. It contains a masterly exposition of the difficult pathological and psychological questions involved in the subject.

The lectures on apoplectiform cerebral congestion, and its relations to epilepsy and eclampsia, and on epileptiform neuralgia, command attention from the interesting practical details which they contain of the highest importance as bearing on the question of treatment.

VIII.—*Contributions to assist the Study of Ovarian Physiology and Pathology*. By CHARLES G. RITCHIE, M.D. London : John Churchill and Sons. 1865.

A great portion, nearly one-half, of the volume, consists of the reproduction *in extenso* of researches made more than twenty years ago by the author's father, and published in the *London Medical Gazette* of 1843-4. The rest comprises an historical sketch from the earliest times to the present day, of the various opinions held regarding ovarian physiology and pathology; whilst the last chapter, and a portion of the one preceding it, alone contain the author's personal researches. We would especially draw attention to his statements with regard to the *dermoid cysts* of the ovary. Pathologists have not been a little puzzled by the occasional occurrence of those strange cysts containing true fœtal structures such as hair, skin, teeth, and bone. When met with in married women, they might be accounted for as the débris of a fœtus; but when found in virgins, how are they to be explained? Are they to be regarded with Coley and Meckel as the results of unnatural excitement (*lucina sine concubito*), or set down with Cruveilhier as monstrosities by inclusion? So late as 1850, Dr. Steinlin, of Zurich, gave it as his opinion that they were entirely analogous to skin cysts occurring elsewhere; and this has been since the generally accepted view. Dr. Ritchie, however, conclusively shows that they are two entirely distinct affections, having only an apparent, but no real analogy to each other. His opinion is, "*that every dermoid cyst of the ovary is an ovum which has undergone a certain amount of development; that it is a perverted attempt at parthenogenesis.*" This view derives considerable weight from the careful dissection made by the author of a dermoid cyst removed from a virgin by Mr. Spencer Wells.

IX.—*A Practical Treatise on Urinary and Renal Disease,
including Urinary Deposits.* Illustrated by numerous
Cases and Engravings. By WILLIAM ROBERTS, M.D.,
F.R.C.P., Physician to the Manchester Royal Infirmary ;
Lecturer on Medicine in the Manchester School of
Medicine. London : Walton and Maberley. 1865.

The work is divided into three parts, the first of which is devoted
to the physical and chemical properties of the urine, and to the
various alterations which it undergoes under different circumstances
of health and disease. The methods of examining the urine for
clinical purposes are explained, and the significance of the diverse
changes experienced by it pointed out. The naked eye and micro-
scopical appearances of urinary deposits are described and figured,
together with those of the extraneous matters which accidentally
find their way into the urine. This first part serves as a sort of in-
troduction to the other two ; and as the author strictly confines
himself to matters which have a practical bearing, it is not so lengthy
as it might have been expected to be, had an attempt been made to
summarize the vast array of researches which have of late years
been made on the composition of the urine, and the rate of excretion
of its several ingredients.

An important point in connexion with the physiology of the urine
—namely, the influence of food in modifying the reaction of the
urine and rendering it neutral or alkaline—is fully investigated by
the author in this first part. Dr. Bence Jones was the first to point
out this important relation between the reaction of the urine and
the digestion of food. Doubted and denied by some, the fact is
generally admitted now, and the results of experiments made by
Dr. Roberts fully confirm it. To this fluctuation the author gives
the name of *alkaline tide*. He found that it set in earlier after
breakfast than dinner, but that its duration was more brief ; that
the alkalinity was due to a fixed alkali, not to ammonia—apparently
to the presence of basic earthy phosphates ; and lastly, that although
the direct effect of a meal was to depress the acidity of the urine, its
remote consequence was to maintain and increase the acidity, and in
that respect the influence of animal was more marked than that of
vegetable food.

The explanation suggested by Dr. Bence Jones was, that through
the withdrawal of acid from the blood into the stomach for purposes
of digestion, the blood becomes for the time less capable of yielding
acid to the kidneys. On the completion of digestion the gastric
juice is reabsorbed with the chyle, and presently communicates its
acid to the urine. But the author proposes another explanation :—

"I am disposed," says he, "to attribute the occurrence of the alkaline
tide after meals to the entrance of the newly-digested food into the blood.
If, as is believed, the normal alkalescence of the blood is due to the prepon-
derance of alkaline bases in all our ordinary articles of food, a meal is *pro
tanto* a dose of alkali, and must necessarily for a time add to the alkale-
scence of the blood ; and as the kidneys have delegated to them the func-

tion of regulating the reaction of the blood, the urine immediately reflects any addition to, or subtraction from, the blood's proper alkalescence. This hypothesis is mainly supported by the coincidence of time which exists between the passage of the digested food into the blood, and the occurrence of the alkaline tide. The gastric juice is poured into the stomach *immediately* after a meal, but the acidity of the urine does not suffer depression for an hour or two afterwards—not, in fact, until the meal has been in great part absorbed." (p. 25.)

Dr. Prout was the first to call attention to a pathological condition characterized by the constant presence of a large quantity of oxalate of lime in the urine, and to which the name of *oxalic acid diathesis* has been accordingly affixed. Dr. Bird, who adopted the same opinion, described this condition as clinically marked by great emaciation, considerable nervous depression, hypochondriasis, fretfulness and irritability of temper, diminution, and even actual loss, of sexual power. Dr. Roberts, however, denies that there is such a distinct pathological state, and grounds his opinion on the following considerations :—

"1. Intense oxaluria may exist persistently without evoking the group of symptoms attributed to oxalic acid diathesis.

"2. This group of symptoms may exist in typical development without the occurrence of deposits of oxalate of lime in the urine.

"3. The most varied morbid states coexist with oxaluria. I have been in the habit for many years of noticing the symptoms and pathological states of those patients in the Manchester Infirmary who had pronounced oxalate of lime deposits. Five out of every six exhibited none of those attributed to oxaluria. Almost every variety of disease was occasionally found associated therewith. The following especially were observed : chronic phthisis, cardiac affections, emphysema with chronic bronchitis, chronic rheumatism, anæmia, hemiplegia, malignant disease of the liver and stomach, chronic vomiting, and cirrhosis." (p. 51.)

There is another peculiar constitutional condition which is characterized by an absolute and relative increase of the excretion of urea, unaccompanied by pyrexia, and which Dr. Prout—to whom renal pathology is so deeply indebted—was again the first to call attention to. This morbid state was subsequently called *Azoturia*. The chief symptom mentioned by Dr. Prout is an urgent and frequent desire to pass water, both by night and day, the quantity of urine voided in the twenty-four hours being somewhat above the normal average. There is no thirst, no craving for food, no emaciation. A remarkable instance of this morbid condition, which is extremely rare indeed, is quoted by the author from Dr. Parkes's work *On the Composition of the Urine*, and another less marked case is detailed, which came under his own observation. In both these cases, a trace of sugar was temporarily present in the urine with the excess of urea, thus giving some support to Dr. Prout's opinion that these cases are pathologically related to diabetes, and may be subsequently developed into that disease.

The second part of Dr. Roberts's work is devoted to the consideration of certain diseases, which, although not dependent on morbid conditions of the kidneys, yet chiefly manifest themselves chemically

through changes in the composition of the urine, and may, therefore, be designated briefly as "urinary diseases." These are diabetes insipidus, diabetes mellitus, gravel and calculus, and chylous urine. To the chapter on diabetes mellitus is appended a *résumé* of the investigations and experiments which have lately thrown so much light on the pathology of this disease, and which have shown the possibility of inducing glycosuria in animals by artificial means. With regard to the question of what becomes of the liver-dextrine during healthy life, and whether, as Bernard teaches, and most physiologists believe, this substance is converted into sugar in the liver, which sugar is constantly poured into the hepatic veins and carried off into the circulation; or whether, as maintained by Dr. Pavy, and more recently advocated by Dr. McDonnell (and not McConnell), of Dublin, no such conversion takes place, except in abnormal or diseased conditions, or as the result of *post-mortem* changes, the author adopts the latter opinion, as being unquestionably the correct one, at least in cold-blooded animals.

* "I have," says he, "repeatedly tested the point in frogs and oysters, and have never succeeded in detecting a trace of sugar in the liver, if the organ was examined before the possibility of any *post-mortem* changes. In the case of the oyster, the experiment is a very easy one. A fresh oyster is cut in half with a pair of scissors, in such a way that one half shall drop into a capsule of boiling water; the other half is laid aside in a warm place. The latter very speedily becomes abundantly saccharine; but in the former the ferment has been rendered inert by the heat, and not a particle of sugar can be detected in it after being long kept in a warm place." (p. 182.)

The medical treatment of calculus has evidently been a pet subject with the author, and the question is, therefore, fully discussed in all its bearings. As the statements made are the result of personal observation and of ingeniously-contrived experiments, they are entitled to the most serious attention. We must refer to the work itself for a full *exposé* of the views held by the author, and must be content to give only a few of his chief results. He thus found that salts of potash dissolved uric acid more rapidly than those of soda; and that carbonate of lithia, which has been much vaunted in recent times as a solvent for uric acid, was much inferior in that respect to the carbonates of potash and soda. The strength of the solution was found to affect its capacity more than any other condition, the greatest solvent power being possessed by solutions containing from 40 to 60 grains of carbonate to the imperial pint. Below this strength, the power gradually declined, whilst with solutions above it, dissolution was impeded, and finally arrested, by the formation of a white crust or coat of alkaline bi-urate on the surface of the calculus. As to the most convenient way of alkalising the urine and keeping it at a degree of alkalescence that should correspond to the maximum solvent power of solutions of carbonate of potash, the author's plan consists in administering (to adults) from 40 to 50 grains of the acetate or citrate of potash, dissolved in three or four ounces of water, every three hours. With regard to the cases of vesical calculi in which the solvent treatment is applicable, the rules laid down by the author are, "that the urine should be acid; the

stone not large, its composition known to be uric acid, or strongly suspected to be such."

The third part of the work is devoted to organic diseases of the kidneys. The subject of Bright's disease is treated from a clinical rather than an anatomical point of view, and the cases classified under the head of *acute* and chronic. Three types of chronic Bright's disease are recognised :—1. Cases which have lapsed from the acute state (kidney smooth, white, generally large, exceptionally dwindled). 2. Cases which have been chronic from the beginning (kidney granular, red, contracting). 3. Cases associated with waxy or lardaceous (so-called amyloid) degeneration of the kidneys. The reason given by the author for rejecting an anatomical classification is that reliance cannot be placed on the exactness of the descriptions hitherto made of the microscopical changes occurring in the kidneys in Bright's disease. Attention is drawn to the recent researches of Henle, Luschke, Roth, Schweigger-Seidel and others which have shown that Mr. Bowman's description of the course and structure of the uriniferous tubes requires considerable modification. The various theories propounded for the explanation of the production of uremia are discussed by the author and severally rejected, but he does not himself suggest any very satisfactory explanation, although he evidently inclines to the opinion that "uræmic manifestations depend mainly and essentially on the accumulation in the blood and tissues of those primary products of tissue metamorphosis (creatine, creatinine, and other extractives), which, in a later stage of histolysis, are converted into urea and uric acid, This opinion is based on the recent experiments of Oppler, Schottin, Perls, and especially Zaleski, which tend to show that *urea and uric acid are actually produced in the kidneys*, and that any traces of them found in the blood are due to re-absorption from the urinary channels.

Those not very common affections of the kidneys, hydronephrosis, cystic degeneration, cancer, tubercle, parasites, malformations, and malpositions, are treated at full length and more than has been yet done in other systematic works.

Although not containing much that is strictly original, Dr. Roberts's work will be found a valuable hand-book of renal pathology, alike useful to the student and the practitioner, as embodying a good, clear, and readable *résumé* of the present state of knowledge in this department, to which British medicine has so largely and so brilliantly contributed.

X.—*On the Early Symptoms of Phthisis ; and the Means best adapted to Prevent or Arrest its Development.* A graduation Essay. By P. W. LATHAM, M.D., Fellow of Downing College ; Physician to Addenbrooke's Hospital, formerly Assistant-Physician to the Westminster Hospital. London. Bell and Daldy. 1864.

This is a small *brochure* in which the author very briefly discusses the nature of tubercular deposit in the lungs, and the changes which

it subsequently undergoes; points out the fact that nature does sometimes effect a spontaneous arrest, not only in the early, but even in the advanced stages of phthisis, and after reviewing the exciting causes, and the early symptoms of tubercular deposit, details the hygienic and medicinal means which should be adopted to prevent or arrest its further development. Hygienic measures are particularly dwelt upon as of the highest importance, and with regard to medicinal treatment, our old friend, cod-liver oil, is still regarded as the sheet-anchor. The author quotes and endorses the following statement of Dr. C. T. B. Williams: "in addition to its being a simple nutrient, cod-liver oil has other and directly thera-peutic powers; over and over again I have seen not only an improve-ment of the system generally under its use, but a diminution in the amount of tubercular deposit. I entertain the conviction that it promotes the dispersion, absorption, and removal of tubercles."

XI.—*Phthisis and the Stethoscope: or the Physical Signs of Consumption.* By RICHARD PAYNE COTTON, M.D., F.R.C.P., Physician to the Hospital for Consumption and Diseases of the Chest, Brompton. Third Edition. London : Churchill and Sons. 1864.

This is the third edition of a very good little book, in which the author has given a good and clear *résumé* of the signs which enable the practitioner to recognise that fearful malady, pulmonary con-sumption, in all its stages. The clinical aspect of the question is alone considered, the author wisely confining himself to practical statements and to conclusions which he has had abundant oppor-tunities of testing himself at the bedside, and eschewing elaborate disquisitions as to the mechanism of the various sounds heard through the stethoscope or elicited by percussion. The present edition differs from its predecessors in containing an introductory chapter, in which are given the classification and nomenclature of physical signs; and last but not least is appended a concluding chapter on the physical signs indicative of *arrest* or *improvement* in the pulmonary disease.

XII.—*Report of the Results of an Inquiry into the Nature of the Fever or Fevers prevailing epidemically at St. Petersburg, during the Winter* 1864-5. By GEORGE WHITLEY, M.D. (Official Paper.)
On the Epidemic Remittent Fever of St. Petersburg. By Dr. MEISSNER. (Schmidt's Jahrbücher, vol. 126.)

Rumours of an unknown pestilential fever prevailing to a serious extent in St. Petersburg in the past winter induced the Privy

Council to commission Dr. Whitley to make a special investigation on the spot. Dr. Whitley briefly reports that the disease which had occasioned so much alarm in Northern Europe was the relapsing or famine fever familiar to British practitioners, and which for the first time appears to have prevailed as a serious epidemic in St. Petersburg.

Dr. Meissner has carefully collated the different accounts which have been published of this outbreak, and his analysis forms a valuable contribution to the epidemiology of the past twelve months —a period which will long be memorable in the history of epidemics.

Dr. Meissner observes that the Petersburg epidemic has been so severe, from the autumn of 1864 to the spring of 1865, that it has attracted the attention of numerous writers in foreign countries, and has been a staple subject in medical literature. There have been various unfounded rumours about its essential character, some persons calling it the Siberian pestilence, and others an exanthematous typhus, whereas it has been a decidedly recurrent fever.

At the end of April the disease was said (in official, although not in private reports) to be greatly on the decline, and Dr. Meissner avails himself of statistics, obtained by the exertions of the English Embassy, of the descriptions of the disease furnished by Professor Botkin and Dr. Hermann, of the post-mortem researches of Dr. Küttner, and of various scattered journal articles, in order to put together some account of the epidemic to that time. He cites Prof. Botkin (*Berl. Klin. Wochenschr.*, 1864), Dr. F. Herrmann (*Peters. Med. Zeitschr.*, 1865), Dr. C. Küttner (*Deutsche Klinik*, April, 1865, *Wien. Wochenschr.*, 1865), Dr. Galligo (*L'Union*, 1865), P. Doubowitski (*Gaz. des Hôp.*, 1865), J. M. Charcot (*Gaz. Hebd.* 1865), Dr. Bredow (*ibid.*), Prof. Keeoch (*Presse Méd.*, 1865), Dr. A. Blumenthal (*Lancet*, 1865).

I.—*Character and Spread of the Epidemic.*

The Petersburg disease had neither the character of an intermittent or of a continued fever, nor of a common typhus, but it assumed a peculiar, and for Petersburg, entirely new type of fever, resembling typhus, but characterised by long intermissions, and very long exacerbations. Griesinger, therefore, described the epidemic as recurrent or remittent fever; other authors as typhoid fever, bilious typhoid, petechial typhus, relapsing fever, seven days fever, mild yellow fever. In other places this form of disease has repeatedly occurred.

It was first observed in Dublin in 1739; in Edinburgh in 1817-8, (Welsh and Christison), and for the second time in 1842-3 (Mackenzie, Cormack, Craigie, and others), in Scotland for the third time in 1847 (Bennet); in London in 1847 (Jenner); at the siege of Sebastopol (Tholozan); in Silesia in 1847-8 (Griesinger); in Galicia in 1832, &c., &c. In Russia it occurred with great severity in Moscow in 1840, especially in the bilious form (Pelekan, Heimann, and Levestamen); in New Archangel in Russian-America in 1857-8 (Govorlivoy); in Odessa in 1864 (Bernstein); and during the last winter in different places of the Governments of Petersburg, and

Novogorod, along the line of railway, and also in many other Governments.

The epidemic at Petersburg assumed a special character, through the simultaneous prevalence of petechial typhus, which, at least in England, has not before been observed. In Petersburg it was nearly as common as the recurrent fever; and hence the true character of the epidemic was for a long time obscure. Typhus is generally domiciled in Petersburg, in the abdominal form, and the exanthematous form only occurs periodically, but then often to a great extent. In the winter of 1863-4 the exanthematous form prevailed, and amounted to two-thirds of all the typhus cases. In May, June, and July, 1864, the proportion sunk to one-third, and in September only isolated cases happened, although these were of great severity. The first cases of recurrent fever occurred at the end of July, and in August, 1864; and by November over 500 cases had been treated in the civil hospitals, namely:—

In August,   40 (35 males 5 females);   9 deaths 22½ per cent.
„ September,   69 (50 „   19   „   ); 4   „   5¾   „
„ October,   120 (98 „   22   „   ); 10   „   8⅓   „
„ November, 337 (286 „   51   „   ); 38   „   11¼   „

For subsequent months there are only imperfect accounts; but, on the whole, up to the first of March, 1865, according to the official reports, there were treated, in the military and civil hospitals 7,097 cases of typhus, and 7,625 of recurrent fever, a total of 14,722. Of these 1,198 typhus cases died, and 836 recurrent cases, in all 2,034. The increase of patients in the last month of 1864 over the same month in 1863, amounted to from 30 to 40 per cent. in January 1865, over January 1864 to 50, and in February 1865, over February 1864, to more than 100 per cent. The proportion of deaths to cases was, in the recurrent fever, only small; 5 per cent. at the beginning of the epidemic, 8 to 10 per cent. at its height. The petechial fever produced a mortality of from 20 to 25 per cent. From the beginning of the epidemic to the end of January 1865, about 2,000 more deaths took place than in the same period a year before. The hospital mortality for January 1865 amounted to nine per cent. of all acute and chronic cases, in January 1864 to 6 per cent. The daily deaths in hospital from typhus and recurrent fever together had not, in February, exceeded 60, and the average daily mortality was not more than 25 or 30. By the end of January and beginning of February 1865 the epidemic had apparently reached its height; and on some days there occurred as many as 150 cases of remittent fever, or, including common typhus and other acute diseases, as many as 250 to 300. In March the number of cases of recurrent fever underwent marked diminution, and instead of it there occurred petechial typhus, and the typhoid fever into which the recurrent may pass in its second stage. Later official records, for the end of March, and the beginning of April, acknowledge a daily increase of 300 cases; 200 recoveries, 110 deaths, and an actual sick-list of 6,000 persons. But these figures are little adapted to convey a correct notion of the severity of the epidemic; for they only refer to hos-

pital cases, and include neither the patients scattered over the town, nor those treated in the temporary institution directed by Governor Suwarow, and containing 3,500 beds. According to a notice in the *Wien. Med. Wochenschr.* (xv. 32), at the end of March and beginning of April the increase of cases amounted to 1300 and more daily; and for the five days from March 28 to April 1 (April 9 to April 13, Russian style), the proportions were as follows :—

	Cases.	Increase.	Recoveries.	Deaths.
March 28.	11,300	1252	340	320
,, 29.	12,790	1505	400	450
,, 30.	13,440	1400	400	290
,, 31.	14,150	963	450	250
April 1.	14,350	1512	500	309

These figures, however, appear to be too small, and only approximatively true.

II. *The Causes of the Disease* have not yet been sufficiently studied; and the nature and character of the first blood-poisoning are wholly unknown. It is highly probable that both predisposing and exciting causes may be found in local and climatic influences; for the marshy situation and rich alluvial soil of Petersburg, as well as its abrupt transitions between summer and winter, are very favourable to the development of infectious diseases generally. In the past year, the change from a tropical summer to a wet autumn and an early winter was especially severe. Moreover, the unwholesome dwellings and food of the working classes, who were gathered together in the capital in extraordinary numbers, from far and near, to the number of about 43,000, must also be taken into account. The immediate result of this over-crowding was an insufficiency of work for all, and great poverty for many—unwholesome dwellings, bad drinking water, and a diet chiefly vegetable. Meat was inaccessible to most, beasts being slaughtered at Moscow, and the joints only being brought to Petersburg, so that the poor could not obtain the cheaper pieces from the heads and shanks, and the other fragments of the slaughter-house. The vegetables also, on which the poor chiefly depend, namely, cabbages and potatoes, were grown in unfavourable weather, and were therefore damaged as well as dear. According to Herrmann, however, potatoes were but little consumed in Petersburg; and some years before, when the potato disease was at its worst, no recurrent fever existed. Tillner ascribes a chief influence to the use of black bread which, in the past year, contained one per cent. of ergot; so that every workman on an average would consume 100 grammes of ergot daily; and he finds much resemblance between recurrent fever and ergotism. It is certain that ergot has in some provinces produced different degrees of poisoning; but the symptoms have been wholly different from those of the epidemic. Abuse of spirituous drinks, assigned as a cause of the disease, may sometimes have aggravated it, and tended to the production of the icteric form; but in hospitals it was rare for old soakers to be admitted, and the patients were mostly young strong people, between 20 and

40 years of age, accustomed to hard work and scanty fare. Contagion appears to have had a considerable share in the extension of the disease, although this is denied or underestimated by many. At all events the greatest ravages of the disease were among the labouring classes, with whom contagious matters are easily distributed by means of foul air, articles of clothing, and direct contact ; but yet, according to the last advice, the aristocracy also had furnished numerous victims to the disease and to death. In the various hospitals many physicians and 46 nurses or attendants have been attacked ; and two physicians and several nurses have died. In one joiner's shop nineteen workmen out of twenty were attacked, and the twentieth only saved himself by flight—a certain evidence of the existence of some degree of contagion.

III. *The symptoms of recurrent fever* have been very carefully described by Dr. Herrmann. The disease shows itself under two forms, simple and bilious fever. The cyanotic form, described as a third variety in the *Deutsche Klinik*, and like the blue stage of cholera, usually quickly fatal, appears only to be a particular method of termination, and not a distinct variety of the disease.

The outbreak is always preceded by some premonitory symptoms, of which the first is usually either a severe rigor or a slighter attack of feverish shivering lasting for several hours. After this languor, pains or heaviness of the head, thirst, nausea, anorexia, sometimes vomiting, followed by increasing weakness, and often by severe pains in the joints—which, however, are only temporary—and may be altogether absent. The premonitory stage is usually short ; and in twenty-four hours the evident symptoms of the disease often declare themselves. The countenance is then depressed, the features are drawn down, the colour red in young, strong people, but more frequently earthy, and, after three or four days, slightly icteric, the skin hot and dry, the head heavy, with dull pain, the temperature 39°—41° C. ; the tongue moist, never wholly dry, covered by a thick yellowish white fur, broad, with lateral indentations, red at the point and margins, coated at the base. The respiration usually free, rarely some cough, with scanty mucous expectoration. The abdomen not distended, but sensitive to pressure, especially in the left hypochondrium, in the region of the left lobe of the liver and of the spleen. The liver considerably enlarged, reaching to the umbilicus, and even filling the whole left hypochondrium ; the spleen constantly three times its natural size. The patient eats nothing, but is thirsty. The stools are somewhat soft, passed once or twice daily, of normal colour. The urine feebly acid, its specific gravity ranging from 1·016 in the height of the fever, to 1·024 at the crisis ; and sinking to 1·007 or 1·009 in the remissions, sometimes containing a little albumen. The patient rapidly becomes so weak as to faint if he attempts to leave his bed. The pulse is weak and small, at first about 100, and then rising to 130 or 140, or even 160, and thus attaining a frequency which is scarcely ever observed in typhus. Delirium is rare, but is sometimes present in a mild form, with disturbed sleep and sluggish answers. These conditions last four,

more often seven, and sometimes ten days, and are succeeded by an abundant diaphoresis, lasting from twelve to thirty-six hours, and attended by abatement of all the symptoms, of which only debility and muscular pains, with moderate enlargement of the spleen, remain. The improvement continues four, six, or rarely ten days, and is followed by a rigor, and by the reappearance of the former symptoms, generally less severe than at first. They continue from two to eight days, and are followed by a convalescence that is often interrupted by one or more slight relapses, and retarded by the great loss of strength, the anæmia, and the indurated enlargement of the spleen. Death may occur during the primary attack from cerebral or pulmonary hæmorrhage; during the remission from meningitis or failure of the heart's action; but mostly later, from secondary processes, such as lobular pneumonia, splenic or renal abscess, chronic intestinal catarrh, dropsy, inanition, uræmia, or choleraic diarrhœa. In the civil hospitals it was common to see very extensive phlegmon of the trunk and extremities, or inflammation and suppuration of the parotid or inguinal glands; occurrences which, as in typhus, often terminated fatally. Latterly, also, the recurrent was often seen to terminate in typhus or typhoid fever. Convulsions, of which Griesinger speaks, were seen by Herrmann only once in the form of fatal epilepsy, and several times in the form of slight tonic spasms of the neck and toes. Local hyperæsthesia of the lumbar and gluteal muscles, or of the sciatic nerve, was less frequent. Botkin once observed partial paralysis of the left arm in the first attack, with restoration after three days.

The second form, the bilious recurrent fever, or bilious typhoid, may either be developed from the first, or be declared from the beginning by the appearance of jaundice. This is followed by bilious vomiting, insupportable headache, delirium and extreme prostration. The remission is incomplete; the temperature and pulse fall below the normal towards the end of the first paroxysm, but a cholæmic condition follows, instead of a salutary perspiration. The temperature of the body is unequal, the skin damp, cold, livid, and, in the most severe cases, marbled on the extremities by blue and red corpse-like patches. An actual petechial eruption is only mentioned by Botkin; who observed it on the neck and extremities, in some cases disappearing early, in others as continuing throughout the fever. The next symptoms are, continued vomiting, dry brown tongue, obstinate hiccup; aphonia, depression and lividity of the face, extreme stupor and prostration, and a condition resembling cholera in appearance, only that the pulse, although very slow, is perceptible, diarrhœa not necessarily present, and the secretion of urine little disturbed. The respiration is only accelerated in stasis of the pulmonary circulation, and is otherwise quiet, even slow and sighing. In two patients the breath was ammoniacal. The condition above described generally terminates in death; but Herrmann saw patients revive, even after many days of collapse, under the use of cold affusion and strong stimulants. With commencing improvement the temperature rises and becomes equal over the body, the pulse becomes quicker and stronger, the vomiting and hiccup cease,

and quiet sleep and the absence of delirium lead to a slow conva-
lescence, the course of which is not at first free from danger of
death. In unfavourable cases the icteric colouring becomes brown,
the vomiting becomes more severe, sometimes bloody, a serous or
bloody diarrhœa sets in, the temperature sinks, and death takes
place from collapse after ten or twelve days of agony.

IV. The pathologico-anatomical changes have been described
with great fulness and accuracy by Dr. C. Küttner. They are not,
as Griesinger believed, of small significance ; but, on the contrary, are
more numerous, more characteristic, and stand in a more intimate
connexion with the symptoms, than in almost any other disease.

Of the 125 corpses examined by Dr. Küttner, 100 were males, and
25 females ; and it was observed that the males died most frequently
at the height of the disease, during an exacerbation or remission,
and the females most frequently from complications arising during
convalescence, pneumonia, pleurisy, pericarditis, intestinal perfora-
tion, and so forth. The deceased persons were mostly strong, well
nourished (only two of the 125 were tuberculous) and of the middle
period of life—few being under eighteen or over sixty-five. The
colour was in most cases yellow, although this tinge had often ap-
peared only very shortly before death. In other cases yellowness
was present throughout the whole period of illness, and disappeared
at death ; so that the colour of the corpse was not sufficient basis
for a distinction between the simple recurrent and the bilious type.
The rigor mortis commonly set in twenty-four hours after death,
and continued about twenty-four hours ; but the time of its appear-
ance, and of the commencement of decomposition, were dependent
upon whether death took place at the height of the fever, when the
temperature of the body was perhaps as high as $42 \cdot 2^\circ$ C. or not
until the period of remission. In the former case, when no im-
portant amount of excretion had taken place, the rigor mortis fol-
lowed immediately after death, as in hydrophobia; and, after
eighteen hours, all the evidences of decomposition were present in
a high degree. In the latter case, on the other hand, when a large
amount of watery excretion had been thrown off, the rigor mortis
was long delayed, as in death from dropsy, and the appearances
found were very different, so that Küttner describes the two con-
ditions separately.

1. *In the patients who died during a period of remission.* In the
head was found only slight meningeal injection, but abundant
serous infiltration, especially upon the convexity of the brain. In
frozen corpses this serum sometimes formed a cap of ice a centi-
metre and a half in thickness, sinking into all the sulci of the brain,
but admitting of being separated from the cortical substance with-
out injury to the latter ; so that it was not a product of active menin-
gitis, but only of passive effusion. The lateral ventricles contained
much cerebro-spinal fluid. Blood clots were not observed, but ex-
travasations of blood on the brain, and on the inner surface of the
pia mater, were frequent. The brain itself was bloodless and pale.
Similar changes were found in the spinal canal, which was opened
in thirteen cases. The dropsy, which, in the form of acute œdema

of the brain, often proved fatal in a few hours, must be considered. as the immediate cause of death ; but at the same time it was itself only a result of a prior excretory process, and therefore was not an essential characteristic of the disease.

The lungs exhibited œdema of the superior lobes, œdematous in-filtration of the pleuræ, and congestion of the inferior lobes ; condi-tions which, like those analogous to them in the brain, were de-pendent upon previous changes, and not essential to the disease. There were also sub-pleural hæmorrhages about the periphery of the lungs ; and, after protracted convalescence, there was often pneumonia, and embolic obstruction of bloodvessels, usually in the neighbourhood of purulent infiltrations, or of patches of adhesion to the diaphragm.

The heart was usually very pale and soft ; in extreme cases much distended by dark fluid blood, without odour, but containing gas, and with no coagula. The walls of the heart were often reduced to half of their proper thickness, those of the left ventricle being only from ten to twelve millimetres thick ; the trabeculi flattened, opal-escent on section, yellowish brown, and easily separated into single fasciculi. Under the microscope the muscular fibre was seen to be thicker than in health, and in cross sections appeared to be broken up into rectangular longish plates, like crystals of cholesterine. These were only loosely attached to the sarcolemma, and in longi-tudinal sections they fell out altogether, leaving only a network of investing membranes. The single fragments of muscle were clearly striated ; and, when treated with ammonia and acids, their longi-tudinal fibrillation became apparent. Their contents were dry and homogeneous, swelled greatly when treated with glycerine and water, and showed no trace of nuclei, fat granules, or molecular fat. Besides this fibrinous infiltration in the muscular fibres themselves, the interstitial connecting tissue contained patches of loose fibrinous deposit with clear fibrillation. In persons who died in the later stages of sub-acute forms of the disease, Küttner was able to observe the farther metamorphoses of this deposit. It became turbid, and permeated by a finely granular molecular material, which at length partly coalesced into large fat drops. Küttner believes these changes were steps towards the emulsifying and resorption of the deposit ; so that, in favourable cases, the muscle might be gradually restored to its normal state. In unfavourable cases, however, the muscular fibre perishes by acute fatty atrophy ; and hence arises an almost necessarily fatal paralysis of the heart. Stokes has observed similar changes in typhus, and has explained them as a typhous infiltration with a viscid fluid. Küttner saw the same changes in the epidemic of 1862 ; and, as the hypothesis of a rapid post-mortem destruction, and the hypothesis of an artificial product, could both be excluded with certainty, he assumed the existence of a *vital typhous infiltration by an albuminous or fibrinous material, the coagulation of which occa-sioned the breakage of the fibres of the heart at the moment of death*. That infiltration rather than inflammation was the agent at work, is shown by the absence of any signs of the latter ; such as injection, pus formation, participation of the myo or endo-cardium. The fibrinous

deposit among the muscular fibres of the heart, with subsequent emul-
sifying and resorption of the exudation, are to some extent character-
istic of the simple form of recurrent fever; while the sub-acute fatty
degeneration with subsequent atrophy is peculiar to the more severe
cases, and forms, when associated with similar changes in the liver,
spleen, and kidneys, a characteristic of the bilious typhoid. Such al-
terations furnish an evident explanation of the weakness of the pulse
and of the heart's stroke at the commencement of the remission. In
some cases the pulse sank within six hours from 144 beats to 52,
became at last wholly imperceptible, and death took place from
paralysis of the heart. This, however, did not always so happen;
for in a few instances the pulse increased again in frequency and
strength to the fever height, and a second paroxysm was ushered in
by a rigor: leading to the supposition that a gradual infiltration was
causing the unusual rapidity of the pulse, and that paresis occurred
when the infiltration was complete. Küttner was unable to demon-
strate the existence of a similar affection of the muscular coats of
the arteries; so that the sudden depression of temperature, the
abundant excretion from the skin, the effusion from the cranial
serous membranes, and from the mucous membrane of the lungs
and of the intestines, must all be ascribed to the modified maceration
of the heart, and the relaxation of the arterial system associated
therewith. A sudden lowering of the bodily temperature, and pro-
fuse excretions, show the occurrence of a sudden and very intense
infiltration of the heart, which commonly produces paralysing or
fatal effects, such as pulmonary œdema or hydrocephalus, and must
therefore be looked upon as most unfavourable signs.

The muscles of the extremities, commonly the seat of acute pains
during life, are also affected by morbid changes, but of a different
kind. In the beginning the muscular fibres appear strongly injected,
and subsequently turbid, indistinctly striated, filled with molecular,
finely granular material, that disappears when treated with acetic
acid, while the fibres become pale, and show neither transverse nor
longitudinal striation. Changes like those of the heart have never
been found, and the muscles of the trunk are always normal.

The abdominal cavity is always free from fluid exudation. The
peritoneum anæmic, discoloured, greenish brown, covering numerous
ecchymoses, which indicate a further determination to the intestines.
Only upon the spleen have been found signs of local inflammation,
or adhesions to the diaphragm, the great curvature of the stomach,
or the colon. Once only perforation by a splenic abscess had occa-
sioned general peritonitis; and, in one case of rupture of the spleen,
an abundant fibrinous deposit covered the convex surface of the
organ, so that the sickle-shaped and gaping wound, two centimetres
wide, was entirely concealed from view.

The mucous membrane of the stomach was swollen, and of a
peculiar greenish-grey colour, the result of decomposition of the
blood pigment by sulphuretted hydrogen, and therefore an evidence
of former hyperæmia. It had an ammoniacal odour in some cases
of coincident disease of the kidneys; and when there had been
much vomiting, presented numerous ecchymoses about the cardiac

orifice. The duodenal mucous membrane was also swollen, and always the seat of ecchymosis ; the ductus choledochus could be felt between the coats of the bowel, like a cord the size of a goose quill : but it was sometimes impossible, even by the strongest pressure, to force the contents of the gall bladder into the intestine. The mucous membrane of the jejunum was swollen ; but that of the ileum and of the colon was so thin that it almost seemed to be wanting, and that the transverse muscular fibres could be distinctly seen through it. It was generally pale and sodden-looking, here and there coloured by former hyperæmia ; the epithelial covering gene-rally retained ; the solitary follicles and Peyer's glands often the seat of catarrhal swelling, often only pigmented ; Brunner's glands much enlarged, but unruptured or flattened ; the intestine full of ill-smelling watery fluid. Colliquative diarrhœa, which often pre-ceded the remission, appears to have been of a paralytic character, like the sub-arachnoid and pulmonary œdema. *The liver* was usually much enlarged, especially its left lobe, which sometimes completely covered the spleen, and was often itself covered by recent fibrinous exudation. It presented a marked aspect, since sharply defined, yellowish white, waxy portions were interspersed among relatively normal parenchyma. These portions were globular near the peri-phery of the organ, sometimes as large as walnuts, dry, slightly prominent ; but in the deeper parts they were flatter and more elongated. In the most pronounced cases they resembled nodules of medullary cancer. In them the acini might be said to be con-fluent, since neither inter nor intra lobular vessels were to be dis-tinguished ; the cells had lost their polygonal outline, the nuclei were only to be discovered with difficulty, and were full of homogeneous dry material, that was neither dissolved nor rendered transparent by acetic acid. In the cells that retained a normal aspect the biliary pigment was entirely wanting. The interspersed diseased portions were found in cases in which neither jaundice nor biliary obstruction had been present ; so that they were unconnected with these condi-tions. The jaundice seemed to be usually a result of duodenal catarrh ; while the above described fibrinous or albuminous infiltra-tions appeared to depend upon the presence in the blood of dele-terious matters, resulting from certain conditions of hyperæmia or blood stasis. In certain cases that commenced with jaundice, and terminated fatally during the first paroxysm, the liver was found diminished and very soft ; although during life it had been con-siderably enlarged. In such cases the parenchyma was usually icteric, moist, and tough (not friable as usual), and presented under the microscope the appearances of acute atrophy. The acini, which could not be distinguished by the naked eye, were completely destroyed in making a microscopic section ; the cells were very turbid and opaque, and full of molecular fat interspersed with free elliptical, hepatic nuclei ; the inter and intra lobular vessels had wholly disappeared, and the tissue was loaded by detritus, and flakes of fibrinous coagulum. Sometimes the fibrinous infiltration spread through the whole parenchyma of the liver, and wrought its com-plete disorganization. Such an extreme degree of hepatic atrophy

was only found in jaundiced patients who died during the first attack; but Küttner observed a lesser degree without preceding jaundice, and associated with similar local changes in the heart, spleen, and kidneys. To such cases only will we assign the name of bilious typhoid, whether icterus occurred during life or not; for they are characterized by a very severe, rapid, and generally fatal course. The milder cases, in which jaundice is due to swelling of the duodenal mucous membrane, may be called yellow recurrent fever or icteroid. In them the fibrinous deposits are less acute and less extensive, and admit of resorption without leading to fatty degeneration of the parenchyma. The prior occurrence of hyperæmia, producing hepatic swelling, cannot be doubted; but this hyperæmia is of a passive character, leading not to suppuration but to effusion, and attributed by Küttner to irritation and paralysis of the sympathetic.

The spleen, after a single paroxysm, was always found considerably enlarged; and sometimes after a second; but after subsequent paroxysms, or after tedious convalescence, of normal size, carnified, and containing infiltrations and hæmorrhagic extravasations. Küttner attaches no importance to the preponderating enlargement of the spleen lengthways, and believes that precedent condition, the size and tension of the pleuro colic ligament, and so forth, have more influence than the nature of the disease in determining the direction of the enlargement. After first paroxysms the capsule of the spleen was seldom changed; but ofter subsequent paroxysms it was common to find exudation and adhesions to neighbouring organs; especially in comparatively small spleens, in which active inflammation of the periphery of the parenchyma had not only spread to the capsule, but also to the adjacent parts, as the diaphragm, lungs, pericardium, colon, &c. In one case such an inflammation had produced pneumonic gangrene of the lower lobe of the left lung, and perforation of the adherent descending colon; the suppurating splenic parenchyma being partly found in the ulcerated colon, and having partly passed in bloody stools *per anum* during life. According to the periods of the disease, the splenic changes may be arranged in three groups.

a. The largest spleens were found at the time of the first paroxysms, or shortly after it. They measured as much as 28 centimetres in length (11 inches), and weighed as much as four pounds and a half. The peritoneal covering was indurated and dotted with white points the size of a pin's-head; the parenchyma dense, friable, smooth on section, dry, dark-brownish red interspersed with white or jaundiced splenic follicles, mostly about two millimetres in measurement, and sometimes coalescing to form little abscess-like masses as large as a pea or a lentil. Sometimes these were wholly wanting, so that they were not essential characteristics ot the disease. Fluid blood, and a parenchyma softened to pulp, as in typhus, were never observed; and the spleen rather resembled lung in a state of croupous infiltration and red hepatisation, as in such lung the circulation was wholly stagnated, insomuch that ruptures of the spleen never occasioned fatal hæmorrhage, but only an effusion of fibrin, partly from the ruptured spot, partly from the investing membrane.

b. The spleens obtained from persons who died at the remission of the second paroxysm, or somewhat later, were never so large as those of the first period. The surface was wrinkled, often covered with slight peritoneal exudation, and, especially on the convex surface, with saffron-coloured or orange-yellow flocculi, which corresponded to internal deposits varying from the size of a pea or a hazel-nut to that of a walnut. The surrounding parenchyma was dry, friable, brownish-red, and seldom exhibited swollen follicles. After a still later accession were found ochre-yellow patches of infarction, associated with others of a pale greyish-red, and with whitish crumbly matter at their centres, both surrounded by dark-brown dry splenic tissue ; so that every accession left its traces behind, and the number of distinctly contrasted infarctions corresponded to the number of febrile accessions during life.

c. In still later periods the residua of the attacks were usually found imbedded in carnified spleen of natural size. The accessions, at first typical, soon became entirely atypical, transitory, like those of pyæmia or septicæmia. The patients die with continued shiverings, sweats, diarrhœa, with only a moderate degree of fever, and with complications, such as pneumonia, pericarditis, or enteritis.

In the spleen, in such cases, were found the *débris* of the morbid products, suppuration, gangrene, and purulent infiltration in the closest connexion, so that the original firm deposits were floating in abscesses. Moreover, various changes were found in the neighbourhood of the spleen ; local, but never general peritonitis, hæmorrhagic and embolic infarction of the pleura ; affections of the pericardium, of the lungs, of the diaphragm, of the colon, and so forth.

The nature of the firm deposits, and the mode of their formation, are still obscure. An actual infiltration in a so-called parenchyma, is, according to Küttner, impossible ; since no intervascular tissue has been hitherto discovered in the spleen. As little can they be embolic infarctions, since they have no wedge-shaped outline, and are found not only at the periphery of the organ, but also scattered among its texture. Küttner inclines to regard them as fibrine clots in the cavernous venous network of the spleen ; as thrombi, which in their later stages, like ordinary thrombi in veins, occasion inflammation, suppuration, and purulent infiltration of adjacent parts. Upon this hypothesis it is intelligible that the spleen should be larger after the first accessions of fever than after subsequent ones, since a part of the venous channels would be cut off by the thrombi, and the enlargement of the organ in certain directions would be obstructed.

The kidneys were constantly enlarged, often to twice their proper magnitude, their capsules thickened, turbid, and adherent to the subjacent parenchyma ; the surfaces lobulated, as in hyperæmic and infiltrated kidneys, with stellate injection ; the cortex greatly enlarged, swollen, with distended radiating vessels easily lacerable in any direction ; the pyramids contracted, hyperæmic, the vessels between the cortex and the pyramids much distended, submucous hæmorrhages in the calices. To this condition, acute swelling of the first stage of a parenchymatous nephritis, farther inflam-

matory changes very often succeeded, especially in the cortical sub-
stance, such as points of suppuration or even abscesses as large as a
hazel nut.   The microscope showed that the epithelium cells of the
tubuli uriniferi, especially in the cortex, were greatly enlarged ; so
that the tubuli were sometimes choked, sometimes distended into
sacculi.   The cell contents were always homogeneous, strongly re-
fracting, the nuclei obscure.   The malpighian bodies were very
large, but wanting blood, and only visible under the microscope ;
their windings filled with homogeneous material, not disappearing
when treated with acetic acid.   In later stages the epithelial cells
were turbid, full of a finely granular molecular substance, and in
places broken up.   Later still, the cell structure had disappeared
entirely, and the tubuli contained nothing but finely granular de-
tritus.   These changes, which corresponded with those in the heart
and in the liver, were in no way due to a common parenchymatous
nephritis.   In that condition there is an albuminous exudation into
the tubuli, with granular turbidity of the swollen epithelium cells,
and tube-casts and albumen are found in the urine.   In recurrent
fever the epithelial cells are infiltrated with a homogeneous friable
substance, producing obstruction of the tubuli ; and the urine con-
tains no more than a trace of albumen. In four cases Küttner found
interstitial nephritis and the formation of abscess, but he regarded
this as being rather accidental than characteristic.

2. *In the bodies of patients who died during the height of the fever*
were found the above-described local changes in the heart, liver,
spleen, and kidneys ; and, moreover, a general resemblance to the
appearances after death from cholera, when it has occurred during
the height of an accession and with cramps.   The rigor mortis, and
sufficient cadaveric change to produce emphysema of the liver and
kidneys, were often found as early as ten hours after death.   All
serous membranes were remarkably dry and sticky, the pericardium
sticking fast to the heart as if adherent, the convolutions of intes-
tine clinging together, with considerable injection and sub-serous
hæmorrhage, especially of the pleura.   All the mucous membranes
were much congested, especially those of the stomach and duodenum ;
Brunner's glands enlarged or fallen out ; the solitary and Peyer's
glands blood red, swollen, often flattened (from *post-mortem* dif-
fusion?), so that there only remained a network of tissue with
emptied follicles.   Sub-mucous bleeding in the form of ecchymoses
or extensive extravasations, were found in the bronchi, in the
stomach, in the duodenum, and in the renal calices, less frequently
in the urinary bladder and in the gall bladder.   The brain was vas-
cular, dry, the cortical substance swollen, of a brownish violet red,
the ventricles contracted, without a trace of cerebro-spinal fluid ; the
lungs generally dry, very hyperæmic on their surfaces, but without
pneumonic infiltration.   The blood was slightly coagulated, greasy,
tar-like, not separating into clot and serum, but with the red cor-
puscles intact.   In strong contrast to this, the blood of patients dying
during a period of remission was quite fluid, and not coagulated, but
with the normal corpuscles sinking to the bottom of the serum.   The
generally hyperæmic internal organs, and the early commencing

(often within ten hours) cadaveric fœtor, were indications that death had occurred during an accession of fever; and anæmia, and serous transudation of the serous and mucous membranes, were characteristic of death during the period of remission. The latter blood changes doubtless proceed from the former ones; but the nature of the chemical alterations involved in them is not yet completely understood. The simultaneous disorder of the heart, liver, spleen, and kidneys, leaves it without doubt that the blood is itself the carrier of deleterious matter. This matter acts upon the sympathetic system, and produces the phenomena of irritation and paralysis of the blood-vessels (accurately investigated by Bernard), and the disorder of the vascular organs dependent upon them. The characteristic fibrinous infiltrations in vital organs were either re-absorbed, leaving a slight induration of the parenchyma, and permitting a tedious convalescence, or they underwent further changes tending to fatty degeneration and atrophy of the organs affected, and, by simultaneous disorder of the heart, liver, spleen, and kidneys, to secondary blood changes terminating in a fatal issue.

V. From the foregoing observations, some conclusions are deduced with regard to the *duration of the disease, its termination, the differential diagnosis and treatment, as well as with regard to the measures that should be taken by Government.*

The *duration* must depend upon the number of cases, but is generally longer than that of typhus. Individual cases are protracted to thirty, forty, and even fifty-two days; since obstinate anæmia, muscular debility, and muscular pains may prolong the convalescence. The termination is generally far more favourable than in typhus. The prognosis is good so long as the fever strongly retains its intermittent character, bad in proportion as it departs from the regular type, especially in the bilious form, and with the appearance of choleraic or uræmic symptoms. About two-thirds of the patients die who suffer from the bilious form; and it is rare for any one to recover in whom uræmic symptoms have existed for a day or two.

The *diagnosis* from typhus is mostly easy. The premonitory stage is much shorter. Diarrhœa is less common. Meteorismus and ileo-cæcal noises are absent. Especially characteristic are the early and inexplicable collapse, the high degree of continued fever (temp. = 40°-42° C., pulse = 100°-140°), the almost constant myalgia, and the sudden retrocession of the fever.

With regard to *treatment*, it must first be observed that, in slight cases and under favourable conditions, spontaneous recovery is the rule. Next, that there are no specifics; and that quinine, the specific against intermittents, is wholly without effect. No precaution, no medicine, no change of place, can avert the second accession. It therefore only remains to watch over and regulate the fever and to combat the local disorders or accidental complications that may be troublesome or dangerous. A cold bath will diminish the temperature for an hour or two, but will be followed by no critical sweat, although most patients, when removed from the bath to a warm bed, begin to perspire slightly—if in the fifth, sixth, or seventh day of the disease. As a rule the treatment is expectant, and consists of mineral

acids and chlorine ; in abdominal complications, laxatives (castor-oil and calomel) or warm compresses and opiates. In the severe hepatic and splenic affections of the bilious form, local bleeding and dry cupping have been used with good results ; and later, during collapse, when stimulants were indicated, blisters, camphor, musk, and warm baths, followed by cold affusion, have been employed. In the later periods, in consequence of anæmia during remission, and especially on account of sequelæ, or of obstinate splenic induration in the bilious form, quinine, iron, wine, and stimulants were given with advantage ; but quinine, in 20-grain doses, was found by Griesinger to be wholly inoperative.

The measures taken by Government for the suppression of the epidemic and the cure of the sick were numerous, but do not appear to have been productive of any decided consequences.

XIII. — *Cholera Prospects : compiled from Personal Observation in the East, for the Information and Guidance of Individuals and Governments*. By TILBURY FOX, M.D. Lond. London : R. Hardwicke. 1865. 8vo, pp. 42.

At the time when cholera was prevailing in Egypt and Syria, Dr. Tilbury Fox was on a tour in those countries. In this pamphlet (a publication of a paper read in abstract before the Harverian Society) Dr. Fox records the information he gathered concerning the epidemic. He describes graphically, although briefly, the general condition of the districts and people coming under his observation in which the disease prevailed, and he contributes some important information on the origin of the outbreak. On this subject he observes :—

"I would direct the attention of the society first of all—and this is the chief aim of my remarks—to the exact origin of the cholera poison. Was cholera generated *de novo* at Meccah, or rather introduced or transported thither, did not its poison find the very best possible conditions for its full development? All recent research tends to prove that the doctrine of spontaneous generation is false and untenable. Crowd your population, vitiate every possible sanitary measure, and the kind of pest which follows will vary much. Thus we hear and read of men on a voyage who, in the absence of nutritious food, had scurvy or dysentery 'break out' amongst them ; of others who, living in crowded, badly-drained houses, have taken typhoid, scarlet fever, or typhus. Now, it is clear that, without the crowding, the famine, or the bad drainage, we should in the above cases have scarcely had typhus, or scarlet fever, or typhoid. The *very same agencies* in full play may be followed by the appearance of cholera. In other words, the same hygienic conditions may be alike in several instances, and yet a different result follow.

"We conclude that there is a special and peculiar poison of cholera, and that it is generated independently of the hygienic influences that immediately surround the individual ; that it speedily developes when the latter are in such a condition as to deteriorate the health. We have had our fill of semi-scientific talk about epidemics and cholera poison, and are told to

look to a deficiency or absolute want of ozone (which has been shown to be erroneous in the recent attack on Egypt) or some other atmospheric constituent, and are apt to argue from this that as there is a coincidence in the peculiarity of the atmosphere and the prevalence of epidemics, therefore the one is necessarily the cause of the other.   Do we not jumble together the influences which affect the individual as rendering him a fitting soil for poisons, and those which are specially concerned in generating the poisons themselves?   The very agencies which are said to generate cholera *de novo* may be entirely absent.   In India it is well known that at certain seasons, a man has only to march through a certain jungle to get cholera.   Where is the effect of overcrowding and bad hygiene as a generative agency here, or on board a well-appointed and well cared-for vessel away at sea?   If the same conditions which existed at Meccah always led to the same result, it would be an argument in favour of the development of the cholera there. The cholera poison was clearly brought to Europe from the East, and in the East from Meccah to Jiddah, thence to Alexandria, Cairo, and other parts ; and there is sufficient reason to warrant us in concluding that *the cholera poison was transported to Meccah from India.*   I learned, as an indisputable fact, that before any cholera appeared at Meccah, several vessels—and British vessels, too—originally from Singapore, which arrived at Jiddah in the beginning of last March, had lost a frightful number by cholera. These vessels touched at Mokullah, on the south coast of Arabia, and must have been three weeks or a month on their voyage from that place to Jiddah.   I am correct in saying that eighty alone died in one ship somewhere off Mokullah.   The disease subsequently appeared at Meccah, and was afterwards brought back again to Jiddah, where it was at its height about the 15th of May, and then rapidly decreased, owing to the embarkation of the pilgrims.   The disease at Mokullah is supposed to have been brought from Java.   Cholera was raging in the Bombay presidency and in Java long before it showed its appearance at Mokullah and other parts of the Arabian coast ; and I am positively informed by the learned secretary to the Epidemiological Society, that it was rife at Aden at the same time ; that is, before and in the line of the arrival of pilgrims on their way to Meccah. Attention was first called to these facts in a letter addressed to the *Lancet.* And here I cannot but pay a tribute to the admirable report which has appeared weekly in its columns.   It is the most trustworthy source of information, and the comments and inferences made from time to time have exhibited an accuracy of truth and a clearness of judgment most remarkably confirmed by the knowledge which has recently come to light. The guidance of the *Lancet* has unquestionably kept us from a considerable degree of error and confusion.   Now it is no more difficult to account for the conveyance of the cholera poison from India to Mokullah, and thence to Meccah *via* Jiddah, than from Meccah to Alexandria, and thence to Malta and Europe, or from Meccah to Damascus.

" If cholera had become *naturalized* at Meccah, or in any part of the East, then the evidences of the presence of its poison in the air or elsewhere would be seen the moment such poison fell upon a suitable soil for its development.   But this is not the case, though there is some good reason to think ere long it will be so ; and certainly when we come to discuss the question of preventive measures, there can be no doubt how dangerous is the doctrine of the development *de novo* of cholera poison at Meccah ; and how much more safe it is to believe that the peculiar conditions under which the virus is produced or propagated, are at present peculiarly prepared in India.   The transference of the disease from India to Arabia illustrates the law of action in regard to acute septic disease, which requires a threefold

condition,—viz., a poison, a means of transference, and a suitable soil; and in estimating the cause of cholera, we must ever remember that the first and last co-exist together. The poison *per se*, the nidus *per se*, avail little; it is the joint influence of the two that leads to cholera. A man may get a dose of poison as he walks through a cholera district and it may fell him, and kill him in a very short space of time : this is quite feasible. On the other hand, where the nidus exists in a perfect degree, the dose of poison need do little to produce marked results."

Dr. Fox terminates his pamphlet with some observations on the treatment of diarrhœa and cholera. He directs especial attention to the asserted good effects obtained in Japan and Egypt by the use of strychnia in collapse and frequent spasm.

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XIV.—*The Principles and Practice of Medical Jurisprudence.* By Alfred Swayne Taylor, M.D., F.R.S., F.R.C.P., Professor of Medical Jurisprudence and Chemistry in Guy's Hospital, &c. London : Churchill and Sons. 1865. 8vo, pp. 1186.

The present volume is the form into which Dr. Taylor's well-known "Manual of Medical Jurisprudence" has grown up after having passed through the probation of seven large editions. It is the "Manual," and much more; indeed, it may very properly lay claim to be considered as a complete and extended view of the principles and practice of Medical Jurisprudence. Among other new subjects which find a place in this volume are :—the origin and phenomenon of death, with an account of the changes which take place in the dead body; putrefaction in air and water, and its conditions ; the identity of bones, skeletons, and mutilated remains; sudden death; the presumption of survivorship; spontaneous combustion; life insurance, and medical evidence; and besides all this, many new facts and cases are incorporated in the old subjects. The mass of new matter to be dealt with, indeed, has rendered it necessary to revise the original plan of this work, and to re-write in many parts the former text, so that in reality the present work is a new book rather than an old one, in a more corpulent form. Moreover, as an additional feature of novelty, engravings are now freely introduced into all the chapters which admit of such illustrations.

After some valuable prefatory remarks upon medical evidence, Dr. Taylor arranges the various subjects of which he has to treat in eighty-seven chapters, under the following main divisions :—questions connected with the dead body, poisoning, wounds and personal injuries, spontaneous combustion, asphyxia, pregnancy and delivery, legitimacy and paternity, infanticide, rape, insanity, and life assurance. The arrangement is none of the clearest, and this is all the more apparent from the want of marginal references—a grievous want in a work of this character; but this deficiency is in great measure

met by a very good index. Still it is much to be regretted that a book which has so much to do with legal matters, and which is likely long to be the standard work on the subject of which it treats, should not be brought out in the manner in which law books are usually got up: that is, with the plan most methodically arranged, and with marginal notes, and with all other facilities for reference; and we offer this suggestion to the publisher as a point to be borne in mind when a future edition is called for—an event which is likely to happen at no distant period.

A book of this kind is a work of reference, and all that we can do is to speak generally of its merits, and to give a sample of its style. Of its merits we have formed a very high opinion. Of course, all parts are not equally meritorious, and it would not be difficult to instance several parts admitting of considerable improvement. Thus, for example, much more might have been said about injuries to the brain and spine arising from railway and other accidents, which accidents are now so frequently made the ground of actions for damages; and exception might be taken to some of the opinions expressed respecting the medico-legal bearings of insanity: still it cannot be doubted that as a whole this work is a safe and sufficient guide, without any worthy rival. Much was to be expected, for no one has a wider experience or riper knowledge than the author; and, most assuredly, these expectations have not been falsified. Indeed, we can honestly congratulate Dr. Taylor on the result of his labours, and at the same time assure our readers that his work fills a place that all must have felt to be unoccupied in English medical literature, namely, that for a worthy text-book of Medical Jurisprudence, and this, too, in a manner which leaves little to be desired. As a sample of the contents, we take, almost hap-hazard, what is said upon a subject which may at any time be of moment to every medical man, namely, that of making a medical report for an inquest—a subject, too, which suggests in more ways than one the expediency, if not the necessity, of having a work like the present within reach:—

"*Medical Reports for Inquests.*—If we except medical experts, who are selected according to their experience in different branches of the profession, medical men have no option respecting medico-legal practice, for the cases which give rise to medico-legal questions are always more or less connected with the practice of medicine and surgery. The initiation of criminal proceedings in England and Ireland is generally in the court of the coroner. Unless the medical man is supposed to be implicated by maltreatment or otherwise in the death of the person, an order is issued to him to make an inspection of the body and report the results. In reference to wounds, the points to which he should specially direct his attention will be found described at p. 382; in reference to poisoning, at p. 153; and to alleged child-murder, at pp. 885 and 890. It is proper that at the time of the inspection and analysis he should make notes of all he observes and does, and upon them he may base a report, which should be a summary of the medical facts, and of the conclusions based upon them, expressed as much as possible in untechnical lan-

guage. In Chapter II. the reader will find a description of the course to be pursued on such occasions, as well as of the circumstances under which notes are permitted to be read; and at p. 158 the rules for drawing up medico-legal reports are also fully explained.

"There are frequently defects in these reports, which it is desirable to point out. The statements are sometimes drawn up in exaggerated language, at others they are overloaded with technical, and therefore unintelligible, terms, and the writer is seldom sufficiently careful to keep his facts distinct from his comments. The former may be useful for evidence, the latter are inadmissible.

"With respect to the first of these defects, it is very much the practice of medical men, in drawing up reports of medical cases for professional purposes, to use, unthinkingly, exaggerated language. Thus it may be observed in the drawing up of an ordinary post-mortem examination, the lining membrane of the stomach is described as being 'intensely' inflamed, or some part is 'considerably' congested, or a cavity is 'enormously' distended. Expressions thus loosely employed convey to the legal mind a widely different meaning from that intended by the reporter. They create also great difficulty in evidence, if withdrawn or modified—a change which other circumstances may show to be necessary, and at the same time they place the witness in an undesirable position before the Court. On the other hand, if retained they may render the facts unsusceptible of explanation upon any theory of natural disease. Such descriptions obviously imply a comparison with similar conditions in numerous other dead bodies; but what is the standard by which they are really measured? and what opportunity has the witness had of creating such a standard in his own mind? In general, it will be found that such expressions have been made without proper consideration, from a habit acquired by the writer in reporting cases for the information of medical men only. Let him who is inclined to use them bear in mind that barristers look much more closely to the strict signification of words than medical men, and that they are always disposed to distrust the judgment of one who cannot speak or write without the use of the superlative degree.

"The free use of technical terms may be attributed to a similar practice in the profession. Putting aside those cases in which a medical man thinks he is displaying his erudition by the selection and use of such terms, there can be no doubt that the greater number of medical practitioners fall into this practice from mere habit. They think they are addressing the report to the president and members of a medical society instead of a coroner and jury, who have never in their reading or experience met with such terms, and to whom therefore they are perfectly unintelligible. In a report on the appearances in the body of a man who had suffered from chronic insanity, which was submitted to me for explanation, the following passage occurred: 'The only morbid appearance in the brain was an atheromatous deposit in the pons Varolii, near the situation of the locus niger.' In another document the reporter stated for the information of a coroner's jury—'That the integuments of the cra-

nium were reflected, and the calvarium was exposed.' If a reporter will use such terms as these, or others of a similar kind—such as ' parietes of the abdomen,' ' epigastrium,' ' hypertrophy of the liver,' when it would require no more trouble to put what he means into plain English—he must be prepared to have his meaning perverted, or wholly misunderstood. Setting aside the men who act as jurors, it may be observed that educated persons, such as coroners and magistrates, do not commonly include professional terms within the range of their studies. There are but few of them who understand the difference between perinæum and peritoneum, or the meaning of the words hemispheres of the brain, pia mater, puncta cruenta, corpora quadrigemina, centrum ovale, &c. They are not likely to know the difference between the cardia and pylorus, nor the nature and situation of the duodenum, jejunum, ileum, or cæcum, and are as ready to consider them to be parts of the liver or urinary bladder as of the intestines. On one occasion I heard a learned judge ask for an explanation of the meaning of the term ' alimentary canal.' A slight consideration will show to any medical practitioner, that refined professional language is wholly misplaced in a report which is intended to inform and convince the minds of ordinary men upon plain matters of fact.

" The last point which calls for comment in reference to medical reports, is the loose manner in which facts and comments on facts, as well as hearsay statements, are sometimes found blended. If a reporter takes care to eliminate facts from comments, his report is admissible, and may be read at the inquest or trial as evidence. The facts are for the jury. The comments upon the facts introduced by the reporter may or may not be just, and are therefore not evidence. Their correctness or relevancy to the case will be elicited in the cross-examination. As a rule, nothing should be entered in a report which is not connected with the subject of inquiry, and which has not actually fallen under the observation of the reporter. The introduction of hearsay statements—*i. e.*, statements made by others, or of circumstances which have come to his knowledge through public rumour — should be carefully avoided.

" In the case of McLaidlaw, who was tried for the murder of Jessie McPherson at the Glasgow Autumn Circuit, 1862 , some discussions took place as to what should and what should not find a place in a medical report. A report was put in at the trial in which the surgeon of police, who had been authorized to make a *post-mortem* examination of the body of deceased, stated in commenting on his report, that the body had been found ' *under circumstances of great suspicion,*' in a front room, &c. The judge, Lord Deas, here remarked that this was matter which was not suitable to a medical report. So again, in reference to the conclusions drawn, the first and third were as follows :—

" 1. That this woman was *murdered*, and that with extreme ferocity.

" 3. *That a severe struggle had taken place before death.*

" The suggestion of murder was an anticipation of the verdict of the

jury. As a general rule, conclusions are limited to the *cause of death*, and no reference is made to ferocity. This passed without comment; but the third conclusion led to the following examination :—

Q. You say that in the kitchen there was evidence of a severe conflict having taken place ; what was the nature of that evidence?

A. There were blood-stains upon the end of the jawbox at the inner side of the kitchen door.

Q. But what led you to say that there were marks of a severe conflict?

A. These marks were principally upon the flags.

Q. How did that show that there had been a severe conflict? The dragging off the body was not a sign of a severe conflict. I therefore want to know what marks of a severe conflict were apparent to you before the dragging commenced?

A. My conclusion that there was a severe conflict was founded upon the streaks which were upon the kitchen-floor.

Q. I again ask, what were the marks of a severe conflict before the dragging (of the body) took place?

A. There were regular marks as if caused by some rough substance.

The Judge (Lord Deas) to witness : That is streaking still ; and the remark in your report about 'evidence of a severe conflict,' just confirms what I have said already as to the introduction of matter not proper to a medical report.—*Report of Trial*, p. 37.

" The difficulty here arose from the introduction of comments into the report. There was no evidence of conflict or struggle, as far as the examination goes. The facts upon which the witness relied as evidence of a struggle were equally consistent with the dragging of the body after death. In a medical report of an analysis in a case of suspected poisoning, it is not necessary that all the details of an analysis should be entered. A general statement of the results, to the effect that certain tests and processes had been used, will be sufficient. In the various analyses connected with the case of J. P. Cook and Ann Palmer (Reg. *v.* Palmer, C.C.C. May, 1856), an application was made to Dr. Rees and myself to give to the prisoner's attorney, before the trial, a statement of the whole of the details of our analysis for antimony and strychnia. We declined to do this without authority. The Queen's Bench was appealed to ; and Lord Campbell decided that there was no legal ground on which such a demand could be enforced. Considering that the medical evidence against the prisoner was so clear and conclusive, the counsel for the Crown advised that we should concede the point, although admitted to be neither in accordance with law nor custom. Upon this advice we acted ; but it is not a course which I should recommend any scientific witness to follow in a future case. The result was that, before the trial, these private memoranda were placed in the hands of some professed chemists retained for the defence, whose object was simply hostile criticism. Portions of them appeared in a garbled and fragmentary, and therefore in an incorrect form, in some journals and newspapers, with comments attacking the processes, and conclusions before our evidence had been given. It was well known to those who had been guilty of this unprofessional conduct that, under the circumstances, we, as witnesses for the Crown, were precluded from making any reply, or giving any expla-

nation. The object, however, in this memorable case, was not truth, but victory. The medical man is called upon to lay himself open to attacks of this nature, or to furnish materials for a cross-examination to 'medical counsel,' acting only in the interests of a prisoner. In regard to the chemical research for poisons, chemists generally differ about the processes which it may be desirable to pursue in a given case; and although the same result may be reached in various methods, it is by no means difficult to find one who will assert that his is the only correct process, and that all others are fallacious, or to raise by such counter-statements that kind of doubt in the minds of a jury which may lead to the discrediting of the witness's results." The author continues—

" Upon a medical report, and such evidence as may be required to explain it, an accused person may be committed for trial at the assizes either by a coroner or magistrate. In the first stage of proceedings, under these circumstances, the medical witness goes before the grand jury, and then, after the administration of an oath, he is required to make a general statement of what he knows of the matter. Such questions are put as may be necessary to elucidate the cause of death; and on the finding of a true bill for manslaughter or murder, the accused is placed upon his trial before one of the learned judges of assize. According to the variable circumstances attending such cases, the medical evidence is called for at an early or late stage of the proceedings. When it is at all doubtful whether the cause of death was owing to any criminal act, it is called for at the commencement of the case in order to lay a foundation for further inquiry.

" It is necessary that a medical witness should remember that copies of his report and depositions either before a coroner or magistrate are usually placed in the hands of counsel as well as of the learned judge, and that his evidence, as it is given at the trial, is compared word for word with that which has been already put on record. There is reason to believe that this is not generally known to members of the medical profession, and thus it happens that either from failure of memory, want of accurate observation, or carelessness in giving evidence at coroners' inquests, medical witnesses lay themselves open to severe censure either by stating matters differently at the trial, or by giving a very different complexion to the facts. Any serious deviations from what is on record will, of course, tell unfavourably for the witness, supply materials for severe cross-examinations, and form an excellent ground of defence for the prisoner. The witness's weakness is the prisoner's opportunity, and, of course, his counsel will not lose the occasion of impressing upon the jury that a man who can on oath give two different accounts of the same transaction is not to be believed on either."

XV.—*Hand-Book of Dental Anatomy and Surgery for the Use of Students and Practitioners.* By JOHN SMITH, M.D., F.R.C.S., Surgeon-Dentist to the Royal Infirmary, Royal Hospital for Sick Children, Dental Dispensary, &c., Edinburgh. London: J. Churchill and Sons. 1864. Small 8vo, pp. 136.

This is an excellent but unpretending little manual, designed for the use of the less advanced dental students. As an example of

Mr. Smith's method of dealing with his subject, we cite his remarks on the administration of chloroform :—

"The mode of exhibiting the anæsthetic agent has been a subject of considerable discussion, and this is a point of some importance in Dental Surgery. Various forms of inhalers have from time to time been brought forward, each being by its own advocates described as superior to all the others, and all of them as preferable to exhibiting the anæsthetics in a napkin or handkerchief. It must be kept in mind, however, that the less we have to attend to besides the patient, the less risk there is of danger; whereas, if attention has to be bestowed on the working of an apparatus, complicated as these inhalers occasionally are, it necessarily interferes with that close watching of the patient which is in all cases absolutely essential. Much importance has been attached to the waste of chloroform resulting from the use of a napkin. A very little consideration, however, will show this to be a waste of the most trifling nature, comparatively of no moment whatever, never in any case amounting to more than the value of a sixpence, or at most a shilling, and seldom to any appreciable amount at all. Again, it has been argued that the patient gets too much chloroform by using a napkin. To this it may briefly be replied, that this is the fault of those administering it. If the chloroform be properly managed, and be withdrawn on insensibility being complete, it is no great matter in this respect what has been used for conveying this agent, as in all probability precisely the same quantity will in any way be *inhaled* to produce a like effect in the same time, unless, indeed, a repetition of very small quantities be administered, when a great deal more will be inhaled with a much less satisfactory result; and that only after subjecting the patient to an uncalled-for and inexpedient protraction of every stage of anæsthesia. Another circumstance rendering any extra complication in the inhaler objectionable, is the frequency with which the inhalation sometimes requires to be suspended and renewed. This especially applies to operations on the mouth and in its neighbourhood, as, for instance, in the extraction of a number of teeth at a time, where the patient becomes conscious during the operation, and requires an additional dose of the anæsthetic to be administered, while perhaps the position of the head and the condition of the mouth would render any special apparatus difficult to adjust, not to speak of the flow of blood rendering them dangerous.

"The safest and the easiest position for the patient is, as has been already said, that of reclining on a couch or sofa, so that the operator may have free access to the parts requiring operation. For this purpose, a low couch, raised at one end, and without a back, will be found very serviceable —the patient being laid in a semi-recumbent posture, with the head supported on the raised end of the couch. The chloroform should be given in large quantities—not less than a dessert-spoonful being poured on the napkin at a time, and this quantity renewed as soon as the former supply has passed off. The handkerchief should be held at the first about two inches from the patient's face, enjoining him to close the eyes, so as to avoid the smarting otherwise apt to be occasioned. As the anæsthetic effects begin to appear, the napkin may be brought into closer proximity with the face, until at last it may be applied in actual contact with the mouth and nose, and kept there, unless there be any contrary indication, until anæsthesia is complete."

XVI.—*The Surgery of the Rectum: being the Lettsomian Lectures on Surgery, delivered before the Medical Society of London*, 1865. By HENRY SMITH, F.R.C.S., Assistant-Surgeon to King's College Hospital, &c. Sm. 8vo, pp. 127. London: J. Churchill and Sons. 1865.

These lectures deal with certain practical points of the subject to which they refer. The first is devoted to some considerations respecting fistula in ano; the second, to stricture, cancer, and polypus of the rectum; and the third, to the treatment of hæmorrhoids and prolapsus. Mr. Smith writes clearly and instructively, as a few illustrations will show.

The question of an internal opening invariably existing in anal fistula is one on which surgeons are still divided. It is one, moreover, which involves a point of some importance in the treatment of the disease. It is certain that an internal opening cannot always be discovered, and when the surgeon fails to detect one, some reasonable hope, Mr. Smith holds, may be entertained that the fistula may be cured without using the knife.

On the position of the internal aperture when, as is most commonly the case, it exists in anal fistula, and the extent of the incision required in the treatment, Mr. Smith remarks :—

"Before a very careful and correct investigation was instituted into the nature and pathology of fistula, surgeons laboured under the impression that in most cases of complete fistula the inner opening was situated either at the extremity of the sinus, or, at all events, would be found some two or three inches up; but it is now an admitted fact, and one capable of demonstration, that in the majority of cases where there is a fistulous communication with the bowel the opening is situated within half an inch or an inch of the verge of the anus. It has indeed been stated that the opening is always within one inch and a quarter, but there are exceptions to this. I have recently inspected the parts concerned in this disease after death, where a fistula ran up by the side of the bowel, and then opened into it at least two inches from the anus. There is no reason, anatomical or mechanical, why the internal opening should not occasionally be situated higher up than one or even two inches, and experience tells us that every now and then such cases are met with. I have lately had under my care in King's College Hospital, a young man, who had a communication between the rectum and ischio-rectal fossa on each side, and the inner opening on either side was quite, if not more than, two inches from the anal orifice. I am somewhat under the impression that too much has been made of the undoubted fact of the internal opening being found in many cases close upon the anus, and that an erroneous practice is in some cases the result of a too great reliance upon the supposed unvarying seat of the inner opening; for it is laid down as an axiom in surgery that the incision needful for the cure of this disease should be confined to the limits of the external and internal opening. When the inner opening does exist, and in the situation referred to, I believe we need not carry the point of the bistoury farther than this spot; but it does not follow that in those cases where an internal opening does not exist, and where the sinus runs some distance up the

bowel, that we should in all cases limit our incision to that point where the internal opening is generally expected to be found."

One of the most annoying results occasionally met with after operating upon a fistula, is loss of power of the sphincter. Mr. Smith thinks that this depends " not so much upon the division of the external sphincter at one or more points, as upon a free incision carried through the internal sphincter and circular muscular fibres of the rectum. There can be no doubt," he adds, " that these muscular fibres act not only as propellers of the contents of the gut, but perform the office of a sphincter as well." If this be true, " we should," Mr. Smith says, " confine our incisions as much as possible to the lower extremity of the bowel, and fortunately, it is found by experience that the division alone of the external sphincter muscle in the direction of the fistulous sinus, is sufficient to produce a satisfactory cure " (p. 15).

The following observations are of interest :—

"It is a somewhat curious fact that the connection between fistula in ano and organic stricture of the rectum has not been much insisted upon by surgical writers. When we see a case of fistula in perineo the constant association between that disorder and stricture of the urethra is at once brought before us, but it is so seldom that we hear of a fistula in ano spoken of as occurring in connection with a stricture of the bowel that we almost ignore, practically, at least, the possibility and probability of such a condition ; but my own observation has led me to believe that in a considerable proportion of cases of a stricture will be found to exist with fistula in ano, and that a failure to cure the latter disease by operation has simply been the result of overlooking the other morbid condition of the bowel ; and it may be readily overlooked if the finger is not passed well up the cavity of the bowel, and if the contraction be seated, as it is at times, beyond an inch and a half or two inches. In some of the cases where stricture does exist coincident with fistula there can be no doubt that it has been the original disease and that the fistula is a secondary phenomenon, but in others there is every reason to believe that the contraction of the gut ensued upon the fistula. In some cases the situation of the internal orifice of the fistula is above the stricture, in others the orifice is either below or in the centre of the contraction. There can be no doubt, however, that, whether the stricture be primary or secondary, it should be looked upon as the chief disease when it is associated with fistula, and that it will be of no use to attempt to cure the latter by operation without first, or at the same time, taking measures to get rid of the former."

In the treatment of hæmorrhoids, as also of prolapse of the rectum, Mr. Smith advocates the use of a clamp in those cases which are commonly treated by ligature, and which cannot be dealt with by nitric acid or other means. Mr. Cusack suggested the employment of the clamp and cautery as a means of destroying hæmorrhoidal tumours thirty years ago, and his practice was followed by other surgeons in Dublin. The same method of treatment was adopted by Mr. Henry Lee in this country. The result of this gentleman's practice induced Mr. Smith to follow the same plan, and he is now "so convinced of its superiority over the ligature, as regards the important elements of safety to life, freedom

from suffering, and saving of time, that he determined to treat in this method those cases both of hæmorrhoids and prolapsus, where he thought the ligature was inadmissible, or where the patient objected to it, as well as those wherein the application of nitric acid alone would not suffice to bring about a cure." (p. 89.)

He describes a new form of clamp, and thus contrasts its use with that of ligature :—

"The operation by the improved clamp, as above described by me, offers, then, the great advantage of safety above the ligature, for there has not been any death from the operation in my hands, nor have I heard of one occurring in the practice of those other surgeons who have employed it, and it seems hardly possible that any danger can be connected with the proceeding beyond that of hæmorrhage ; and to prevent that has been the especial object of the alteration in the mechanism of the instrument ; and all those who have seen me perform this operation are well aware that this object has been fully attained. Hæmorrhage, as a result of the proceeding, can only be due to a want of care on the part of the surgeon—that is, if he employs the clamp I describe—for he has no business to finish the operation until every bleeding point be cauterized. It will be seen that in one of my earlier cases considerable amount of blood was lost, but this was the result partly of haste and carelessness, and of the use simply of nitric acid as a cauterizing agent. It is not possible that either tetanus or pyæmia, the two most formidable results of the ligature, can occur after this operation, because the condition which produces the former affection does not obtain— viz., the presence of an irritating substance around the nerves for several days, and pyæmia, or other inflammatory affections, will be effectually prevented by the exposed surface being deprived of its vitality and the veins being blocked up by the cauterization. Another and great advantage is, as I shall be able to show you, that patients are not detained above half the time in bed as is consumed when the ligature is applied, and the convalescence altogether is much more rapid ; and in this hard-working age the saving of time is of the utmost importance to a patient who is compelled to give up his business or other occupations for the purpose of undergoing an operation ; indeed, in many instances patients are debarred from submitting to the operation of the ligature in consequence of the necessary time consumed in the convalescence."

We apprehend that the evils assigned by Mr. Smith to the use of the ligature in hæmorrhoids are more imaginary than real, and that the advantages to be derived from the use of the clamp and cautery are less obvious than he supposes.

XVII.—*A Theoretical Inquiry into the Physical Cause of Epidemic Diseases : accompanied with Tables.* By ALEXANDER HAMILTON HOWE, M.D., Honourable East India Company's Service. 8vo, pp. 171. London : J. Churchill and Sons. 1865.

This is a curious book. The author has brought together numerous chronological details respecting epidemics, and upon them he founds a lunar theory of recurrence. His conclusions are stated at the

outset of the book in a series of propositions. The chief of these propositions are as follows :—

" *Proposition 1st.*—Epidemic visitations recur at regular intervals of time, of which eighteen and a half years may be taken as the type. *

" *Proposition 2nd.*—The length of the interval between successive periodic visitations corresponds with the period of a single revolution of the lunar node, and a double revolution of the lunar apse line.

" *Proposition 3rd.*—The revolution of the lunar node and apse line, involving a material difference in the relative position of the moon to the earth's equator, must exercise a very sensible influence on the tenuity of the earth's atmosphere.

" *Proposition 4th.*—It is considered that this difference of tenuity must render the atmosphere at certain times more susceptible to the propagation, if not also to the origination, of the epidemic poison.

" *Proposition 5th.*—The influence of the revolution of the lunar node and apse line upon the physical condition of the earth's atmosphere has never yet been demonstrated by astronomers and meteorologians, although there can be no doubt whatever of its existence. M. Arago considers that its effect will be quite the opposite to that of gravity.†

" *Proposition 6th.*—This influence is more visible by its indirect than by its direct effects on the earth's atmosphere ; by its medical than by its physical effects ; in the same way as the cause of the secular acceleration of the moon was discovered by the indirect effect produced upon the earth's radius vector by the planetary masses.

" *Proposition 7th.*—A double revolution of the lunar apse line and a single revolution of the lunar node occupy very nearly the same period of time, namely, eighteen and a half years ; so that at the expiry of that period the lunar mass occupies exactly the same relative position to the earth's equator which it did at the commencement of it.

" *Proposition 8th.*—The revolution of the lunar node causes a difference in the declination of the moon of no less a quantity than thirty degrees and thirty minutes during the period of eighteen and a half years.

" *Proposition 9th.*—Ferguson. ' But since the earth's equator is inclined twenty-three degrees and thirty minutes to the ecliptic, and since the moon's orbit is also inclined five degrees thirty minutes to the ecliptic, the moon's orbit must in certain positions of the nodes be inclined about twenty-nine degrees to the earth's equator, and in other positions eighteen degrees ; and during eighteen years, the time in which her nodes perform a complete revolution, the plane of her orbit will have every possible position between eighteen and twenty-nine degrees.'

" *Proposition 10th.*—Epidemic visitations depending upon lunar influence, (for there are other sources of epidemic diseases, local and partial,) the longitude of the lunar node is always a small number, understanding by a small number anything under one hundred and eighty degrees, or six signs of the zodiac.

" *Proposition 11th.*—Epidemic visitations possess regular periods of invasion, increment, acmè, decline, and cessation.

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* This regular and stated interval is liable to a little variation, both on the one side and the other, but a period varying from seventeen to twenty years will embrace all possible deviations.

† " Besides the air being kept to the earth by the principle of gravity, it would acquire the same degree of velocity that the surface of the earth moves with, both in respect of the diurnal revolution as of the annual, about the sun, which is thirty times swifter."—*A Complete System of Geography,* by Bowen.

"*Proposition* 12*th.*—This would proceed from whatever cause they may originate, but the regularity of the progressive increase appears to me to agree better with an exact physical than with a variable moral or social cause.

"*Proposition* 13*th.*—The simultaneous appearance of epidemic disease in several places of the earth's surface, its continuous and progressive march in a somewhat straightforward direction, show that it owes its origin to cosmical, and not to local causes.

"*Proposition* 14*th.*— The simultaneous appearance of epidemic and epizootic diseases, referred to by authors on the subject of epidemic diseases, likewise prove the existence of some great cosmical cause, as distinguished from the more ordinary sources of disease—namely, contagion, malaria, the influence of heat and cold, and all other such causes of disease.

"*Proposition* 15*th.*—The simultaneous outbreak of an epizootic and an epidemic is well illustrated by the present epidemic visitation of 1865, and in that of 1849.

"*Proposition* 16*th.*—It is considered that the influence exercised by the moon on the earth's atmosphere will extend as far as thirty degrees beyond her own actual declination, that is to say, to sixty degrees north and south of the equator, and these are what may be styled the EPIDEMIC LIMITS.

"*Proposition* 17*th.*—This cause will operate most powerfully within the compass of the moon's actual limits in the heavens north and south of the equator, that is say, that the moon's influence in producing a state of the atmosphere most favourable to the propagation of epidemic disease will operate most powerfully within a space of the earth's surface comprised between thirty degrees north and thirty degrees south of the equator.

"*Proposition* 18*th.*—Accordingly we uniformly find that epidemic diseases always originate within the limits last referred to.

"*Proposition* 19*th.*—It is a most important point to remember that it is only a limited number of the whole community which is liable to the malignant and deleterious influence of the epidemic poison, or Loimaitia. *

Subsequent propositions refer principally to cholera. In support of these propositions the author advances numerous illustrations derived from ancient and modern history. The data, we fear, are, as a rule, little trustworthy.

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XVIII.—*Hand-book for Yellow Fever: describing its Pathology and Treatment, as observed in Unintermitted Practice during Half a Century. To which is adjoined a Brief History of Pestilential Cholera and a Method of Cure, as detailed in a Series of Official Reports made during the Prevalence of the Epidemic in the Island of Trinidad in* 1854. Small 8vo, pp. 80. London: J. Churchill and Sons. 1864.

This book is not a systematic manual, but a series of notes, recording the results of the author's experience.

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* Should this term be accepted and adopted, it will probably be most convenient to call it Loimacy. *Vide* Watson's *Practice of Physic*— "Epidemic Cholera."

XIX.—*On Psoriasis and Lepra.* By T. M'CALL ANDERSON, M.D., Physician to the Dispensary for Skin Diseases, Glasgow, &c. 8vo, pp. 62. London: J. Churchill and Sons. 1865.

This is the third of Dr. Anderson's valuable contributions to dermatology. It is an able treatise on two forms of skin-disease, which often tax the skill of the practitioner to the utmost. Dr. Anderson looks upon lepra not as a separate affection from psoriasis, but "merely as one of the declining stages" of the latter complaint. He describes a new variety of psoriasis under the name of "psoriaris rupioides," and illustrates its character by an excellent coloured lithograph. Dr. Anderson is not a man of multitudinous words ; and it would be unjust to him and his book to attempt to summarise his excellent observations on the etiology and treatment of the affections he treats of.

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XX.—*On the Cure of Club-Foot without Cutting Tendons ; and on certain New Methods of Treating other Deformities.* By RICHARD BARWELL, F.R.C.S., Assistant-Surgeon, Charing Cross Hospital. Second Edition, greatly Enlarged. Small 8vo, pp. 231. London: Robert Hardwicke. 1865.

The appearance of a second edition of Mr. Barwell's work is a gratifying proof that the principles of treatment which he advocates in respect of club-foot and other deformities, are being rightly appreciated. Mr. Barwell has carried out a successful war against the indiscriminate use of tenotomy, and a vicious application of mechanical means in these cases. It may be useful to recapitulate the principles upon which his treatment is based. They are as follows :—

"1. That as the loss of balance in muscular action, which produces the deformity, is caused by paralysis or debility of a certain set of muscles, we are to restore that balance.

"2. This restoration is to be accomplished by substituting a force for the weakened or paralysed muscles, and not by depriving the still useful ones of their power.

"3. That the succedaneum must be applied as nearly as possible in the direction and position of the paralysed organ or organs, and must act on the parts, and on those only, on which the muscular force is normally expended.

"4. Thus the foot is not to be treated as a whole, but as a compound of many bones, each of which being subject to muscular action plays a definite part in deformities.

"5. That since motion is essential to prevent or overcome fatty degeneration, as well as to allow the weakened muscles to recover their

power, the foot is not to be fastened to any rigid clog, but, on the contrary. is to be allowed movement, which is gradually to be guided by the imitative force from an abnormal into the normal direction.

"6. That since a muscle stretched, while at rest, only remains elongated during repose, it is necessary to prevent return of distortion by accustoming the muscle to act while under the influence of the elongating force, and in the limits of its increased and normal length."

Mr. Barwell's book is largely illustrated with photographic plates and woodcuts.

XXI.—*Parturition and its Difficulties, with Clinical Illustrations and Statistics of* 13,783 *Deliveries.* By JOHN HALL DAVIS, M.D., F.R.C.P., Obstetric Physician and Lecturer on Midwifery and the Diseases of Women and Children at the Middlesex Hospital, &c. Second Edition, Revised and Enlarged. London: R. Hardwicke. Small 8vo., pp. 350.

This volume contains the experience of the author in the difficulties of childbirth and their consequences in the puerperal state. The first section is devoted to an account of the causes and the principles to be observed in the management of powerless and obstructed labours. In it also the mechanism of parturition under natural and preternatural presentations is explained; and the management of labours under the various presentations when a recourse to artificial interference is necessary, is also fully treated of. The second section of the work comprises the history of 153 labours, exhibiting various degrees and kinds of difficulty. The third section consists of the statistics and analyses of 13,783 deliveries attended under the direction of Dr. Davis from 1842 to 1844, chiefly in the Royal Maternity Charity.

XXII.—*On Epidemic Cholera and Diarrhœa; their Prevention and Treatment by Sulphur.* By JOHN GROVE, M.D., M.R.C.S.L., L.S.A. Third Edition. pp. 43. 1865. London: R. Hardwicke,

Dr. Grove, as the results of his personal experience in the great epidemics of cholera of 1848-49 and 1854, has come to the conclusion that of remedial agents in this disease and epidemic diarrhœa, sulphur is probably the most trustworthy and best deserving of a more extensive trial, in the event of cholera again appearing on these shores. As additional arguments in favour of the use of this drug, he notes: 1st, its cheapness; 2nd, its abundance; 3rd, its simplicity; 4th, its readiness of access; 5th, the freedom from danger in its use; 6th, its applicability to all ages. Mr. Grove is a thoughtful observer, and his recommendations deserve consideration at the pre-

sent time. We quote the following observations on the probable influence and mode of administration of the drug :—

"Looking at the human body preparatory to an attack of disease as in a condition of organization predisposed to disturbance in the equilibrium of its functions, it may be regarded as in a state having a tendency to decomposition.* Organic liquids, it is well known, are liable to decomposition, unless some agent be used to arrest the process. Alum arrests the process of decomposition in paste. Bichloride of mercury has a similar effect, as well as preventing the process of germination ; many other mineral salts have the same property. This arrest of decomposition is accompanied by an arrest of germination, so that even should it not be effected in the blood, as supposed by Dr. Cowdell, the first steps in the proceeding are commenced in an attack of cholera. Now, supposing this decomposition to be commencing, what agent have we, simple in itself, harmless as regards the vital actions, natural as a constituent of the body, and useful as a stimulant and alterative ?

"I unhesitatingly affirm that sulphur is that agent ; after a dose or two doses of this medicine have been taken, the whole body soon becomes under its influence, every portion of the skin exhales the peculiar odour of that substance, and a genial warmth and moisture pervade the whole surface. When I have discovered this effect to be produced on my patients under the influence of the cholera poison, I have always been able to pronounce them safe, and hitherto I can honestly say without one disappointment. Whether we understand the cause of the power of sulphur over this disease or not, should it interfere with our reliance on it as a remedy ? I apprehend there is no one bold enough to assert that they know the *modus operandi* of mercury in syphilis.† I would rather incline to the belief that the cure is effected on the principle before mentioned, that the bichloride of mercury retards decomposition, and moreover, that it is to the bichloride alone, as a soluble salt, we must attribute the advantage, whatever may have been the form in which the mercury had been originally exhibited. Mialhe has most clearly shown, that no medicine can have an effect upon the system generally, unless it first be absorbed, and to be absorbed, it must first be rendered soluble. Calomel and blue pill we may therefore consider inert, until the chemicals existing in the stomach or bowels should render them soluble ; and to make them so, chlorine must, in some way or other, be obtained for the purpose : how this can be brought about is yet a mystery ; though we know this much, that there is an abundance of the chlorides in the fluids of the body to supply the necessary amount of chlorine for the purpose.

"The use of sulphur has been objected to by many because they could not understand the principle upon which it is supposed to act ; the results, however, of its application, as recorded farther on, bear ample testimony to its efficacy, and they who use it must, for the present, be satisfied without knowing its *modus operandi*.

"Dr. Bird, of the United States, asserts that in the neighbourhood of sulphur springs, or where sulphur abounds in the water, cholera does not prevail. He further says he has tried sulphur in cholera, and found it a valuable remedy.

"Mr. Blacklock, of the Madras Medical Establishment, considers sulphur not only a valuable remedy in cholera, but he believes if sulphur were ad-

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* It is here supposed that a distinction will be understood between real and apparent health.

† In the uncertainty of the matter, however, does any man hesitate to use mercury as a remedy for Hunterian chancre ?

ministered as a prophylactic, cholera might be banished from the army as
scurvy has been nearly eradicated from the navy.

"Induced by these suggestions to try sulphur in cholera, and being
satisfied, from the trial made in 1849, that it was a remedy of great value,
I published the results of my experience with cases. Since that time I have
had further opportunities of testing its advantages, and these have amply
confirmed my opinion. I believe that a fair and judicious use of the
remedy will yield results as certain as any within the domain of medicine.

"The mode in which I prepare and exhibit the sulphur is as follows :—

R. Sulph. Præcip. Pur.   Ʒiv.
   Sodæ Bicarbon.   Ʒiv.
   Sp. Lavandulæ Co.   Ʒxxiv.
   Aq. Destillat.   Ʒlxxii.   Ft. mistura.

"The soda and sulphur are first triturated and combined in a mortar, the
spirits of lavender then added by degrees, and trituration continued until
the whole are well mixed, when the water is added. Two or three ounces
of this compound are dispensed at a time, of which the patient is ordered to
take two teaspoonfuls in a little water, every two, three, or four hours, in
simple diarrhœa, but if the case is urgent, every ten minutes or quarter of
an hour. In sudden attacks, or if the patient is suffering severely, I com-
monly add from ten to thirty minims of Liq. Opii Sed. or Tr. Opii to the
first dose of the mixture."

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XXIII. — *A Practical Treatise on Rupture : its Causes,
Management, and Cure, and the various Mechanical
Contrivances employed for its Relief.* By T. P. Salt,
Birmingham, Anatomical, Surgical, and Orthopœdic
Mechanist, Surgical Instrument Manufacturer to the
General and James's Hospitals, &c. London : 1865.
J. Churchill and Sons. Sm. 8vo, pp. 112.

Mr. Salt is an ingenious mechanician who has invented a truss
with an obnoxious name, and who publishes this book (a second
edition, by the way) for all whom the subject may concern, pro-
fessional or otherwise.

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XXIV.—*The Vaccination Acts : with Introduction, Notes,
Cases, Instructional Circular and Index.* By Danby P.
Fry, Esq., of Lincoln's Inn, Barrister-at-Law, and of
the Poor-law Board. Second Edition. London. 1865.
Knight and Co. Sm. 8vo, pp. 84.

This is a handy compilation useful to public vaccinators and others
who are concerned in carrying out the Vaccination Acts.

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XXV.—*On some Varieties and Effects of Cancerous Disease of Bone. Liston Clinical Prize Essay*, University College. 1860. By WILLIAM HICKMAN, M.B., F.R.C.S., formerly House-Surgeon and House-Physician to University College Hospital.

The subjects considered in this brief but most interesting essay are spontaneous fracture of bone occurring with the cancerous diathesis, infiltrated cancer of bone, mode of development of cancer of bone, a case of scirrhous disease of bone in the horse, and primary encephaloid of the periosteum. The essay is copiously illustrated from excellent drawings by Dr. Hickman. The following are the author's conclusions on the mode of development of cancer in bone :—

"There is a peculiar form of infiltrated cancer of bone, which may be either primary or secondary, in which the cancerous nature of the disease is only discoverable by the microscope.

"The compact tissue of bone, as such, may be, and commonly is, invaded by cancer, even at an early stage.

"Infiltrated cancer of bone originates in the medulla of the cancelli and the haversian canals, and not in the laminæ, the interlaminar spaces, nor the endosteum.

"The development of cancer in bone is attended by the enlargement, breaking up, and coalescence of the haversian canals.

"By this breaking up, &c., of the haversian canals, a condition of rarifaction and atrophy is produced which may proceed to an indefinite extent, and which at an advanced stage reduces the bone to a degree of brittleness corresponding to fragilitas ossium, and at a still more advanced stage, to a state of softness, and pliability characteristic of the disease called mollities ossium.

"Probably many of the cases which have been hitherto called fragilitas, or mollities ossium, have been instances of this form of disease.

"The atrophy of bone stated to accompany the cancerous diathesis is in most, if not in all, instances a result of cancerous disease of the bone itself.

"And that—Many of the cases of spontaneous fracture which have been attributed to atrophy—either with or without cancer existing elsewhere in the body—have been really due to cancerous disease of the bone." (p. 32.)

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XXVI.—*The Antecedents of the Cancer.* By CHARLES R. MOORE, F.R.C.I., Surgeon to the Middlesex Hospital, &c. London. 1865. Richards. Sm. 8vo, pp. 53.

This interesting memoir is a reprint, with additions, from the *British Medical Journal.* Mr. Moore proposes for solution the question, "Are there any antecedent conditions influencing the production of cancer?" Mr. Moore first examines the grounds on which cancer is held to be originally of constitutional nature. These are:—1. Its final universal effusion throughout the body. 2. Its occasional commencement in many primary tumours simultaneously. 3. Its capacity to grow in various textures. 4. Its local recurrence

after an operation on the primary tumour. 5. Its appearance in internal organs notwithstanding the extirpation of the primary tumours. 6. Its repetition in families (hereditary nature) ; and 7. Its relation to tubercle. After an examination of each of these grounds, Mr. Moore concludes that cancer arises as a local disease, independently of a constitutional or general cause :—

"1. Because of its invariable origin as a single tumour.

"2. Because of the manifest dependence of the later tumours upon the first. This opinion is supported by the observed similarity of the morbid substance, in whatever organ or texture it may grow ; by the order regulating its dissemination ; by the interruption of the progress and dispersion of the disease, if the primary tumour be removed ; and by the possibility of extirpating that tumour by an early and adequately extensive operation.

"3. Because of the remarkable manner in which it is inherited as a local, and not as a constitutional peculiarity—a disease of the corresponding organ of plural members of one family ; whilst at the same time any inheritance of the disease is uncommon, and that by infants extremely rare.

"4. And, lastly, because of its preference of the healthiest persons."

After having examined the last proposition more at large, Mr. Moore finally answers the question originally advanced thus :—

"The general conclusion to which I am led by the foregoing considerations is that cancer has no dependence on any malady anterior to the appearance of the first tumour, but that it originates in persons otherwise healthy and strong. If this conclusion is inconsistent with prevailing opinions as to the cause and nature of the disease, the collision of the facts proves the need for more satisfactory evidence on behalf of those opinions than is at present in our possession. The existence of an antecedent general malady is, as far as I can perceive, pure conjecture, being entirely destitute of proof, or even of reasonable support. The idea sprang up in error ; and it has been perpetuated mainly by the erroneous conclusions drawn from repeated want of success in surgical operations."

XXVII. — *Opinions and Statistics on the Immediate Treatment of Stricture of the Urethra, by the Employment of the "Stricture Dilator."* By BARNARD HOLT, F.R.C.S., Senior Surgeon of the Westminster Hospital, &c. London. 1865. Welch. Sm. 8vo, pp. 56.

In this pamphlet Mr. Holt publishes certain letters received from surgeons in different parts of the kingdom, in answer to an appeal from himself, relative to his plan of treating stricture. Of 742 cases recorded, irrespective of many operated by Mr. Campbell de Morgan, Mr. Shaw, Mr. Birkett, and others, eleven terminated fatally, but death does not appear to have occurred in a single instance except where the patient was so seriously diseased as to render the most careful passage of an ordinary catheter full of peril.

" In not one of the fatal cases is it satisfactorily shown," writes Mr. Holt, " that death was *caused* by the extreme measures that *are supposed* to be exercised by the adoption of the immediate methods.

"The first died six months after the operation, from abscess of the testes, the result of retaining a catheter.

"The second, from inflammation of the bladder, and ulceration of the urethra at a part where there was no stricture.

"The third, admitted the operation had nothing to do with the death.

"The fourth, where a passage was *forced with the dilator, because no catheter could be passed.*

"In the fifth, the patient had extensive ulceration of the bladder, and the urethra was 'found only slightly inflamed at the seat of stricture.'

"The sixth, Mr. Smith's case,

"The two succeeding, from King's College. *No particulars.*

"The ninth, Mr. Jordan's case, where he says, 'notwithstanding there were all the indications of renal-mischief, and that possibly even the passage of a bougie might be fatal, I decided to give him the only chance. *Kidneys entirely disorganised.*'

"And lastly, two of my own cases, one death some time afterwards, from long existing disease; the second a week afterwards, from what I was informed was serous apoplexy. Both already published.

"But, supposing for the sake *of argument, and that only*, that all these deaths are admitted as being attributable to the operation, can any other operation, undertaken for so serious a disease, show such favourable returns?

"It is certainly remarkable that in no single instance has there been infiltration of urine, and that in all the cases where *post-mortems* have been carefully conducted, the urethra at the seat of stricture was found only slightly inflamed.

"This is at variance with what was met with in the case recorded in my book on the immediate treatment; as, in that instance, the stricture was split, and if surgeons would pass the tube down rapidly I believe the stricture would be always split, and no after difficulty ensue in introducing the catheter.

"The directions that I would further give, with regard to the immediate plan, are as follows :—

"Be certain that the dilator has not deviated from the normal channel, and if any doubt exists examine by the rectum, and ascertain whether the instrument has passed fairly through the neck of the bladder; if there is still doubt, do not operate without the handle is perfectly straight and flat, with regard to the mesian line, and that the urine escapes through the perforated stillet. When satisfied that the instrument is fairly introduced, push the chosen tube upon the perforated wire *quickly*, to the end, and then remove the dilator by partly withdrawing the tube; thus you prevent the mucous membrane being pinched between the blades of the instrument. A catheter one size less than the tube should now be passed, to remove the urine, and which should, for the first three or four times, be evacuated by a catheter. By adopting this plan of after treatment, I have succeeded in preventing rigors by not allowing the urine to come in contact with the recent wound until it has become coated with lymph.

"During the last two years I have had opportunities of examining some of the cases recorded in my first and second edition, as well as some hospital cases, which have been operated upon eight and nine years since. Where the after treatment has been faithfully carried out, the same sized instrument has been always maintained. Where the cases have been entirely neglected, the stricture has, to a certain extent, recurred; but in even these the urethra allowed itself, by the gradual enlargement of the dilator, to be at

once increased to the full size ; and if the patient is then careful, he may afterwards remain well. Cases 3, 5, 7, and 8 in the first edition, and 10, 13, 15, 16, 17, 20, and 23, in the second edition, I have seen or heard from lately, remain perfectly well, and only require the occasional passage of the same rigid instrument that was used at the time of the operation.

"I have no hesitation in declaring, after now a very large experience, extending over a period of ten years, that this is the general result."

XXVIII.—On the Supply of Water to London from the Sources of the River Severn. By JOHN FREDERIC BATEMAN, C.E., F.R.S., F.G.S., &c. (Printed for Private Circulation.)

This pamphlet deals with a question of extraordinary and growing importance to the metropolis. The period is probably not very remote when the supply of water to London, as at present obtained, will fall below the requirements of its rapidly-increasing population. The augmentation of the inhabitants is proceeding at a much more rapid rate than the augmentation of the water-supply ; and the chief source of the latter—the Thames—is beginning to show unmistakeable signs of commencing exhaustion. There are other cogent reasons of a sanitary nature, and which will increase in force with the progress of years, why the Thames should cease to be the chief fountain of the metropolis.

Mr. Bateman grapples with the great question arising out of these considerations, and points out a solution. No scheme, he holds, is worthy of attention which would bring less than 200,000,000 gallons of water per day at an elevation which would supply nearly the whole of the metropolitan district by gravitation without pumping.

"The nearest districts from which this quantity of unexceptionable water can be obtained," he writes, "is that which, lying on the flanks of the mountain ranges of Cader Idris and Plynlimmon, in North Wales, forms the upper basin of the river Severn. Here the direction of the mountain chains, the heights of their summits, their proximity to the sea, their geographical position and physical peculiarities, entitle us to expect a very large fall of rain. They are so similar in their general characteristics to the Cumberland and Westmoreland mountains, that we should be justified in assuming (in the absence of more precise data) the recorded fall of rain in that part of the country for that which might be expected on the upper drainage of the Severn."

In the mountainous region referred to two districts have been selected, each capable of supplying—in addition to the natural volume of the streams in dry weather — something more than 100,000,000 gallons of water per day, after giving compensation in water to the streams on which reservoirs would have to be constructed, or from which water will be abstracted.

Of these districts, and the mode of connecting them with London, Mr. Bateman says—

"The districts selected are free from metalliferous veins and from other sources of contamination. They are situated on the Upper and Lower Silurian formations, which yield water as pure in quality as that of Loch Katrine, and which afford sites for magnificent reservoirs, which may be constructed with perfect safety and facility, and of sufficient capacity to economize the full annual rain-fall I have assumed, and to last out droughts from 140 to 150 days' duration, both for town supply and river compensation.

"One of these districts of 66,000 acres in area is situated a little to the east of the range of mountains, of which Cader Idris and Aran Mowddy are the highest summits, respectively of 2914 feet and 2979 feet in height, and forms the drainage ground of the rivers Banw and Vyrnwy, which join the Severn about half-way betwixt Welshpool and Shrewsbury. The other district, of about equal area, is situated immediately to the east of Plynlimmon, 2500 feet in height, and forms the drainage ground of the upper portion of the river Severn proper. The discharge-pipes of the lowest reservoir in each of these districts will be placed at an elevation of about 450 feet above the level of Trinity High Water-mark.

"The water will be conducted by separate aqueducts of 19 miles and $21\frac{1}{2}$ miles in length respectively, to a point of junction near Marten Mere, a little to the north-east of the town of Montgomery, from whence the joint volume of the water will be conducted by a common aqueduct, crossing the river Severn close to the town of Bridgnorth, and passing near to, or within a few miles of, Stourbridge, Bromsgrove, Henley-in-Arden, Warwick, Banbury, Buckingham, Aylesbury, Tring, Berkhamstead and Watford, to the high land near Stanmore, where extensive service reservoirs must be constructed, which will be at an elevation of at least 250 feet above Trinity High Water-mark. From these reservoirs the water will be delivered to the city at 'high pressure' and under the 'constant supply' system. The length of the common aqueduct will be 152 miles, and will be capable of conveying 220,000,000 gallons of water per day. The total distance from the lowest reservoir on the Vyrnwy will be 171 miles, and the total distance from the reservoirs on the Severn will be $173\frac{1}{2}$ miles, to which must be added the length of piping from the service reservoirs to London about ten miles, making the total distance 183 miles ; from the reservoirs to Bridgnorth the aqueduct will be carried through the successive ridges of mountain which it will encounter, principally by tunneling, in the same manner as the aqueduct from Loch Katrine to Glasgow. At Bridgnorth it will have to cross the Severn by inverted syphon pipes. Thence, through a comparatively open country—partly by covered aqueduct or tunnel, where it is necessary to preserve the water from contamination—partly by open aqueduct where the country is favourable for such construction, and partly by syphon pipes where it crosses the valleys of the rivers Stour, Avon, and other streams. It will avoid all the coal fields near which it passes on its route, and be carried to the north of the saliferous deposits of Droitwich.

"The works will be exceedingly simple in their construction, presenting no difficulties of an engineering character. No embankment of a reservoir will be more than 80 feet in height, and they will be placed in situations either where hard impervious clay, or the solid rock of the Silurian formation, afford the means of making perfectly safe and water-tight reservoirs. One of these reservoirs on the River Vyrnwy will, by an embankment of 76 feet in height, form a lake of five miles in length, and will contain 1,089,000,000 cubic feet. Another on the River Banw, by an embankment of 80 feet in height, will form a lake of four miles in length, and contain 940,000,000 cubic feet ; and a third in the same district, by an embankment of similar height, will contain 732,000,000 cubic feet. Amongst the

reservoirs on the Severn will be one which, by an embankment of 75 feet in height, will contain 2,230,000,000 cubic feet—this single reservoir being 50 per cent. greater than the available water in Loch Katrine.

"The surveys by which these facts were ascertained were made soon after the completion of the Glasgow Waterworks, in the autumn of 1860 and in the spring and summer of 1862, and the probable cost of the works has been carefully estimated.

"Each branch of the works, down to the junction of their respective aqueducts, will cost in round numbers £1,100,000 ; and the main aqueduct from thence to London, including service reservoirs equal to 10 days' supply of 200,000,000 gallons per day, or 20 days' of half this quantity, will cost in round numbers £6,400,000—making a total of £8,600,000. These estimates include the cost of connecting the service reservoirs with the main pipes of the existing waterworks and 14 per cent. for contingencies upon the whole estimated cost of works, land, and piping ; but the piping provided across the valleys of the main aqueduct is only on a scale of 120,000,000 gallons per day, as it can be added to from time to time as the demand increases.   So also it would be unnecessary to construct the reservoirs on more than one branch of the works in the first instance, by which the outlay of £1,100,000 might be postponed until it was required.

Mr. Bateman considers the manner in which this gigantic scheme could be carried out and its cost defrayed.   A necessary item would be, as in the Main-Drainage Scheme, that the plan should be effected by one central authority, the metropolis for the purpose being formed into a single district.

Under any system, or scheme, of water supply, the latter suggestions should hold a foremost place ; for, as the water-supply stands at present, the poor of London are, perhaps, worse supplied with this necessary of life than the poor of any civilized metropolis in the world ; and this evil will not be obviated until the water-supply is vested in a public body, and becomes a public duty.

XXIX.—*Reports to the Lord Provost and Magistrates* (of Edinburgh) *on the Pathological Appearances, Symptoms, Treatment, and Means of Preventing Cattle-Plague.* 4to.   Edinburgh : Maclachlan and Stewart.

The most complete series of investigations concerning the cattle-plague now prevailing in the United Kingdom as yet carried out are those which have been made by Dr. Andrew Smart, for the Lord Provost and Magistrates of Edinburgh. The first three reports of this physician, illustrated by several admirably-executed coloured lithographs of pathological appearances, have been published in a separate form at an almost nominal cost (2s. 6d.) These reports refer to the post-mortem appearances, symptoms, treatment, and prophylaxis of the epizootic.   A fourth report by Dr. Smart, which has appeared subsequently, contains a summary of further researches on the pathological appearances. The reports deal chiefly with facts of observation and recommendations based thereupon. We cite some of the more important without comment :—

"*Pathological Appearances which are Invariable and Characteristic.**—
These are—First, the peculiar appearance and diseased condition of the
lining membrane of the fourth stomach.   It likewise manifests all the
morbid changes so distinctive of this disease, in their most advanced and
destructive forms.   It is therefore the most characteristic pathological
lesion.   Secondly, the reddened and congested condition of the vulva.
Thirdly, the eruption or roughening on some parts of the superficial
membrane of the mouth.   When these diseased appearances are found co-
existing with the condition of the bowel already described, the pathological
group is complete and unequivocal.   As regards negative conditions, there
exists no true ulceration anywhere, and rarely any trace of inflammatory
products are found.   The reddened colour of the diseased membranes is due
to vascular congestion in its extreme form, and not, as frequently alleged,
to ecchymoses or extravasations.   Emphysema of the lung is not, as has
been stated, a concomitant condition of the disease.

"*The Character of the Disease*, as deduced from the morbid appearances
which it presents, we have already seen, bears no resemblance to the ulcera-
tive typhoid fever of man.   As regards human typhus, the analogy likewise
fails.   The morbid conditions are undoubtedly peculiar.   In so far as any
resemblance to human disease exists, it points to a condition of the internal
lining membranes analogous to the conditions of the skin in acute scarla-
tina, and the disease might not inaptly be termed an internal or mucous
scarlatina.   The general congestive but non-inflammatory state of the
mucous membranes, the epithelial desquamation from the mucous surface,
the increased temperature of the animal in the early stage of the disease,
and the incubation period and critical days, are facts which all tend to sup-
port this view ; while the condition of the kidneys, and the invariable pre-
sence of albumen and blood cells in the urine, lend additional confirmation
to it.

"*Comparative Pathological Appearances.*—I instituted a series of com
parative dissections with the object of ascertaining how far the pathologica₄
lesions existing in cattle plague were peculiar and distinctive.   Animals
affected with pleuro-pneumonia and murrain (mouth and foot rot), the two
other most prevalent and destructive forms of disease in cattle, were
selected for this purpose, and the following conclusions have been ar-
rived at :—

"Firstly—The pathological appearances found existing in uncomplicated
pleuro-pneumonia bear no resemblance to those either of cattle plague or of
murrain disease.

"Secondly—In murrain, or mouth and foot rot disease, a portion of the
lining membrane of the fourth stomach presents, in some degree, the red-
dened aspect found in the same stomach of animals affected with cattle
plague, but there exist the following very marked distinctions :—1. In
murrain, the congestive reddening is limited to the upper third of the mem-
brane.   2. The colour of the membrane in murrain, as compared with that
of cattle plague, is deficient in depth, and never exhibits the purple or mul-
berry tinge.   3. The epithelium is entire, and the mucous membrane other-
wise sound.   4. In all the cases of murrain examined, the reddened colour
of the membrane was found associated with dark-coloured spots, varying in
size and configuration.   These dark patches are sub-mucous hæmorrhages
or apoplexies.   The blood thus deposited acts as a foreign body and ulti-
mately induces erosion of the superjacent membrane.

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* See Dr. Murchison's observations, p. 12, of the present volume of the
ABSTRACT.

" From these conclusions it will appear that the morbid lesions existing in the chief epizootic diseases of cattle possess features which are broadly distinguishable."

" *General Principles of Treatment.*—These are based upon a knowledge of the disease, and indicate the line of treatment to be adopted in dealing with it.

" 1. *The Animal Temperature is Lowered and Deficient.*—This has to be restored and maintained. To do so, the affected animal is protected from all direct draughts of air, placed in a house or byre with an equable temperature not under 70° Fah., and the hide thoroughly cleaned and rubbed down, and a warm covering kept on the animal throughout the progress of the case.

" 2. *The Stomachs are Loaded and Distended with Food.*—This condition, by preventing access of medicine and suitable nourishment, presents a very great obstacle to treatment. But it also indicates the line of treatment to be adopted at this stage—namely, to remove the hurtful accumulation as quickly as possible. This must be done by mild purgation, suited to already irritable condition of the lining membrane of the stomach and bowels. The medicines here indicated are gentle relaxants combined with diuretic action.

" 3. *Extreme Vital Depression is characteristic of the Disease throughout its entire progress.*—This is conjoined with a very peculiar and rapidly destructive change of some of the internal structures. Stimulants to support the depressed vital powers, and resist, as far as possible, this tendency to destructive dissolution, are thus clearly indicated from the very commencement. And as it is of importance to make the healthy organs subserve the purpose of removing from the blood the morbid materials that may exist in it and in the general system, stimulant treatment should conjoin with it remedies fitted to excite the functional activity of the two great eliminators of this class—namely, the skin and kidneys. Hence stimulant, diaphoretic and diuretic action are here indicated. Regular milking of the diseased cow, in order to prevent the retention in the blood of the elements of the milk, is also, on the same general principles, clearly indicated throughout the entire course of the disease.

" 4. It almost appears an axiom to say that a properly regulated and rational system of nursing is in the treatment of disease in cattle as in man, of very great importance to the comfort of the sick, and as an aid to their recovery. In the present example, no method of combating the malady can be of any use in which careful nursing does not form the basis of every other effort to restore health. It is not idle to repeat this, because, in any system of treatment hitherto made public, the importance of this fact has either been insufficiently recognised or entirely overlooked. Hence arises the necessity of there being kind, skilful, and experienced attendants, and a well-regulated dietary.

" *Remedies.*—These are few, simple, and selected on the principles above stated. My experience of their suitableness is every day more established by fresh examples of their efficacy. There are yet only three kinds of drugs which I found it requisite to employ. 1. Laxative, with diuretic action. This is principally used in the early, but often required at other periods, in the progress of the disease. It is composed of

<div align="center">

Laxative.

Nitrate of potash, } of each, 1 ounce.
Powdered ginger, }
Powder of sublimed sulphur, 2 ounces.
Treacle, 1 lb.
Water to make a quart, and well mixed.

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This quantity is given night and morning, or, if requisite, oftener, until scouring is produced.   Afterwards, an occasional bottle will maintain their free, without excessive, action.

"As the vital powers sink rapidly, there should be as little delay as possible in administering stimulants.   I have found the following mixture possessing stimulant, diuretic, and diaphoretic properties, very efficacious :—

Stimulant.

Carbonate of ammonia, ¾ of an ounce.

Sweet spirit of nitre, } of each, one oz. and a half.
Spirit of mindererus, }

Cold water, 9 ounces.   Mix.

This dose, from the commencement of treatment, is administered thrice a day during the entire course of the disease.   When prostration is great, it is sometimes needful to conjoin it with the laxative given along with all other medicines.   In such cases, the doses are smaller.

" When convalescence is fully established, a simple tonic hastens recovery. I find none so good and safe as cinchona bark.   The best quality only should be used, and given in doses of one ounce and a half of the powder.

" This tonic in the early period of convalescence is combined with the stimulant, and at a later period with a quart of good sweet ale given once daily. It is best administered at night. With the exception of an occasional dose of laudanum (two tablespoonfuls to any medicines the animal is getting, or in the food) to obviate straining and control excessive diarrhœa. No other drugs are used.

" *Diet.*—It should be simple, and, until decided convalescence, well cooked, and given in small and regulated quantity.

" I use the following :—1. Full mash.   It is composed of :—

Four handfuls of bran.
Four do. brewer's draff.
1 lb. of peasemeal.
2 lb. of mashed turnips, well boiled.

Not too thick, and given night and morning. At midday a drink of gruel is given, made with 2lb. of oatmeal, well boiled in six quarts of water.   In addition to these, some raw turnip (2lb., for example, of green-tops), and 1lb. of hay, may be allowed in small quantities during the twenty-four hours.   To allay thirst, three to four quarts of water, previously boiled and allowed to cool, is given in mouthfuls during the day. This constitutes the full diet of a decided convalescent. Half of this diet is, in most instances, during the acute course of the disease, too much. In all cases the same kind of food and periods of giving it are followed. There are some animals that for a time refuse all food, not excepting gruel. In such cases the gruel is administered by the bottle thrice daily, along with or after the medicine. The animal should get a little mash so soon as it takes it voluntarily. It is often expedient to miss a meal, especially whenever symptoms of an unfavourable indication appear. These are not of unfrequent occurrence during the course of treatment. Grass is given, and the quantity of hay and turnip increased as there is progress towards more perfect recovery.

" *Prevention.*—Every animal yet unaffected by the disease, should receive three ounces of *sulphite* of soda daily, dissolved in the water it drinks, or mixed with the wash or other soft food."

XXX.—*De la Propagation du Choléra et des Moyens de la Restreindre.* Par le Dr. Jules Worms, Membre de la Société de Médecine de Paris. Paris : V. Masson et Fils, 1865. 8vo, pp. 44.

Dr. Worms argues that the sole known force to which the propagation of cholera was to be attributed is the germ engendered by an individual suffering from cholera. Whatever is known on the subject may be reduced to this theory. The immense majority of persons do not suffer from exposure to the malady, and the influence of the poisonous germ may be exalted, restrained, or annihilated by the state of the individual who finds himself within the focus of its action ; also, by the nature of the locality into which the germ is imported, and by atmospheric conditions.

The really obscure part of the problem refers to those causes which determine the receptivity or immensity of people and places. Many attempts at solution of this question have been attempted, but none satisfactory.

Dr. Worms discusses the different facts bearing upon his question clearly, and as a practical conclusion, he maintains that the propagation of cholera to a distance from India might be controlled. The measures by which such a control could be exercised, should form the subject of special investigation.

INDEX TO VOL. XLII.

END OF VOL. XLII.